1997-1998 Cancer Statistics

Cancer Incidence and Mortality in North Dakota

Annual Report

Dec 2001

Special Section:
Cancer Clusters

North Dakota Department of Health
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PREVENTIVE HEALTH SECTION

Dear Colleague:

The North Dakota Cancer Registry is pleased to provide you with a copy of the registry's annual report.

The *Cancer Incidence and Mortality in North Dakota* contains cancer incidence statistics for newly diagnosed cancers and mortality data. In addition to presenting cancer data by site, sex, age-adjusted rates and county, this report also includes a special section on cancer clusters.

This report should be useful in understanding the impact of cancer among North Dakota residents and in developing and targeting prevention, screening and treatment programs.

Your comments and suggestions are welcome. We hope this report will serve as a resource for the general public, physicians and other health professionals, educators, the media, researchers and legislators throughout North Dakota.

Sincerely,

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North Dakota Cancer Registry's Annual Report on Cancer Incidence and Mortality, 1997-1998

The North Dakota Cancer Registry, North Dakota Department of Health, welcomes any comments or suggestions about the content and format of this report. Please address all comments, questions and requests for further information or additional copies of this report to:

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Acknowledgments:

This report is a product of the North Dakota Cancer Registry (NDCR). Located within the North Dakota Department of Health, the cancer registry is funded by a grant from the Centers for Disease Control and Prevention, National Program of Cancer Registries. The Department of Health wishes to recognize and thank the many individuals throughout the state who have provided the cancer incidence data for this report.

Suggested citation:

Marlys C. Knell, CTR; Kenneth B. Hill, MS; Donna O'Shaughnessy, CTR; Joell M. Letzring, CTR; and David Mayer. North Dakota's Annual Report on Cancer: Cancer Incidence and Mortality in North Dakota, The North Dakota Cancer Registry, North Dakota Department of Health, Bismarck, N.D., 2001.

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This publication was supported by Grant/Cooperative Agreement Number U75/CCU810668-07 from the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention.

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Table of Contents

Introduction and Executive Summary

An average of eight people are diagnosed with cancer and four people die from cancer in North Dakota every day. Cancer is second only to heart disease as a leading cause of death among the state's residents.

With this annual report, the North Dakota Cancer Registry (NDCR) makes a general report to the public on the status of cancer among North Dakota's residents. This report will focus on:

- A description of the North Dakota Cancer Registry and its goals.
- A special section on cancer-cluster investigations.
- A summary of cancer data among North Dakota Residents.

As part of the goal to provide a simple, descriptive summary of cancer in North Dakota, no formal statistical testing of differences in incidence or mortality was conducted or presented in the main narrative of this document. However, the statistical tables provide data (i.e., age-adjusted rates and standard errors) for the individual researcher to perform such statistical testing. Cancer incidence is classified using the International Classification of Disease — Oncology (ICD-O). Information about cancer mortality was obtained from the Division of Vital Records death certificate master file.[1] Several analytical measures of cancer data are used throughout this report. These measures include crude, age-specific and age-adjusted rates, as well as years of potential life lost and mortality-incidence ratio. Detailed descriptions of these analytical measures may be found in the Glossary and the Technical Notes.

The North Dakota Cancer Registry

The primary purpose of the central cancer registry is to support cancer control by targeting, monitoring and evaluating programs that promote early detection, diagnosis and treatment of cancer. Population-based cancer registries are essential for evaluating the cancer burden in a specific geographic area. The cancer registry supports efforts by community hospitals and health systems with respect to the evaluation of their cancer patient care.

The cancer registry supports local health care agencies and providers by:

- Providing summary statistics on the distribution of cancer cases by type.
- Following cancer incidence and treatment trends throughout the state.

1 Mortality data in this report may differ from mortality data published by the North Dakota Department of Health's Division of Vital Records. Such differences are attributed to different population denominators released by the U.S. Census and/or differing levels of precision on age-adjusting standard population weights.

- Facilitating rapid reporting of cancer, thereby allowing state or local health officials to assess suspected cancer clusters or suspected cancer hazards in their local communities.

- Providing accurate cancer data for cancer-related reports to legislative bodies and agencies.

Established in 1994, the NDCR has received five-year federal grants from the Centers for Disease Control and Prevention (CDC) for the purpose of timely, accurate and complete data collection through a computerized reporting system. Additional funding is provided by the state of North Dakota and from various registry supporters.

With the amending of the Administrative Rules on reporting of diseases in July 1996, the reporting of newly diagnosed cancers to the central cancer registry became mandatory for all medical diagnostic laboratories, physicians, and other health care providers who administer screening, diagnostic or therapeutic services. Also required to report are hospitals and other health care facilities that provide inpatient and/or outpatient services and mobile units that provide screening, diagnostic or therapeutic services. (North Dakota Century Code Chapters 23-07-01 and 33-06-01) When a cancer case is reported from more than one source, all information is consolidated into one record.

All invasive and in situ carcinomas and tumors of the central nervous system are reportable to the NDCR.

Basal and squamous cell skin carcinomas of the skin are not collected except if they originate in a mucous site or are staged as regional or distant upon diagnosis.

Carcinoma in situ of the cervix uteri is not reportable under the recommendations of the North American Association of Central Cancer Registries (NAACCR) or the American College of Surgeons, Commission on Cancer.

The NDCR, under the Administrative Rule, acts as the custodian of the data and ensures that the information received is held in confidence and that the privacy of the individual patients, reporting facilities and physicians are protected. Only aggregate data are published. Anyone with access to the confidential data is required to sign a confidentiality statement.

To ensure valid and accurate data, all information is subjected to an EDITS software program that checks the coded information against an encoded set of acceptable values. In addition, numerous NDCR registry software queries are run against the data to ensure its accuracy.

As a statewide population-based registry, the cancer registry provides data for future epidemiological research related to cancer-control activities throughout the state.

Cancer Clusters

In this section of the annual report, we provide information about cancer clusters – what they are and how they are investigated. The following information about cancer clusters is compiled from several sources, including the National Cancer Institute and the Centers for Disease Control and Prevention.

What Is Cancer?

Some facts about cancer can be helpful when trying to understand cancer clusters:

- Cancer is the uncontrolled growth and spread of abnormal cells anywhere in the body. However, cancer is not just one disease; it is actually an umbrella term for at least 100 different but related diseases.
- Each type of cancer has certain known and/or suspected risk factors associated with it.
- Cancer is not caused by injuries, nor is it contagious. It cannot be passed from one person to another like a cold or the flu.
- Cancer almost always is caused by a combination of factors that interact in ways not yet fully understood.
- Carcinogenesis (the process by which normal cells are transformed into cancer cells) involves a series of changes within cells that usually occur over the course of many years. More than 10 years can go by between the beginning of carcinogenesis and the diagnosis of cancer, making it difficult to pinpoint the cause of the cancer.
- Cancer is more likely to occur as people get older; because people are living longer, more cases of cancer can be expected in the future. This may create the impression of an abnormally high number of cases of cancer.

The National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) program estimates that there are more than 8 million cases of cancer in the United States. Therefore, it is not unusual for several cases to occur within the same family or neighborhood.

What Is a Cancer Cluster?

A disease cluster is the occurrence of a greater-than-expected number of cases of a particular disease within a group of people, a geographic area or a period of time. Clusters of various diseases have concerned scientists for centuries. Some recent disease clusters include the outbreak of Legionnaire's disease in the 1970s from contaminated water in air conditioning ducts, the initial cases of a rare type of pneumonia among homosexual men in the early 1980s that led to the identification of human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), and periodic outbreaks of food poisoning caused by eating food contaminated with bacteria.

Cancer clusters may be suspected when people report that several family members, friends, neighbors or co-

workers have been diagnosed with cancer. In the 1960s, one of the best-known cancer clusters emerged, involving many cases of mesothelioma, a rare cancer of the lining of the chest and abdomen. Researchers traced the development of mesothelioma to exposure to a fibrous mineral called asbestos. Exposure to asbestos, which was used heavily in ship building during World War II and has also been used in manufacturing many industrial and consumer products, is the only known risk factor for mesothelioma.

How Are Cancer Clusters Investigated?

Epidemiologists investigate disease clusters, including cancer clusters. An epidemiologist is a scientist who studies the frequency, distribution and control of diseases in populations. Using their knowledge of diseases, environmental science, lifestyle factors and biostatistics, epidemiologists try to determine whether a suspected cluster represents a true excess of cancer. Epidemiologists have identified certain circumstances that may lead them to suspect a potential common source or mechanism of carcinogenesis. A suspected cancer cluster is more likely to be a true cluster if it involves:

- A large number of cases of one type of cancer, rather than several different types;
- A rare type of cancer, rather than more common types of cancer; or
- An increased number of cases of a certain type of cancer in an age group not usually affected by that type of cancer.

Before epidemiologists can accurately assess a suspected cancer cluster, they must determine whether the type of cancer involved is a primary cancer or a cancer that is the result of metastasis (spread from another organ). This is important because scientists consider only the primary cancer when they investigate a cancer cluster.

Epidemiologists also try to establish whether an exposure to something has the potential to cause the reported cancer, based on what is known about that cancer's likely causes and what is known about the carcinogenic potential of the exposure. Scientists use various statistical methods to determine whether the reported excess of cancer cases is really a larger number than would normally be expected to occur.

What Roles Do Heredity and Environment Play in Cancer Clusters?

Because most cancers are likely to be caused by a combination of factors related to heredity and environment (including behavior and lifestyle), studies of suspected cancer clusters usually focus on these two issues. Researchers are just beginning to unravel the puzzle of carcinogenesis in terms of the roles of heredity and environmental exposures. Some of their discoveries are outlined below:

- All cancers develop because of genetic mutations. Some mutations that increase the risk of cancer are present at birth in the genes of all cells in the body. If a mutation is present in all cells, including reproductive cells, it can be passed from parent to child. This is known as an inherited susceptibility.

- Most cancers are not due to an inherited susceptibility but result from genetic changes that occur during one's lifetime within the cells of a particular organ.

- Familial cancer clusters (multiple cases among relatives) have been reported for many types of cancer. Because cancer is a common disease, it is not unusual for several cases to occur within a family.

- Familial cancer clusters sometimes are linked to inherited susceptibility, but environmental factors and chance also may be involved.

- Having an inherited susceptibility for a type of cancer does not guarantee that the cancer will occur; it means there is a tendency for it to occur if other factors promote cancer growth.

- The term environment includes not only air, water and soil. It includes substances and conditions in the home and workplace, as well as diet; the use of tobacco, alcohol or drugs; and exposure to chemicals, and sunlight and other forms of radiation.

- People are exposed to a variety of environmental factors for varying lengths of time, and these factors interact in ways still not fully understood. Further, individuals have varying levels of susceptibility to these factors.

What Are The Results of Some Cancer Cluster Investigations?

For a variety of reasons, most reported cancer clusters are not shown to be true clusters. Many reported clusters do not include enough cases for epidemiologists to arrive at any conclusions. Sometimes, even when a suspected cluster has enough cases for study, a true statistical excess cannot be demonstrated. Other times, epidemiologists find a true excess of cases, but they cannot find an explanation for it. For example, the suspected carcinogen may cause cancer only under certain circumstances, making its impact difficult to detect. Moreover, because today's populations are mobile (often living in multiple geographic locations), it can be difficult for epidemiologists to identify previous exposures and find old records.

During the period from 1961 to 1982, the Centers for Disease Control and Prevention investigated 108 reported cancer clusters in 29 states and five foreign countries.[2] The studies were initiated in hopes of identifying a single causative agent of cancer. During these investigations, however, no clear cause was determined for any of the reported clusters. A separate CDC investigation of a non-occupational cancer cluster in the early 1980s did lead to the discovery of a causal agent — HIV and Kaposi's sarcoma in otherwise healthy homosexual men. Since the mid-1980s, no CDC staff has been dedicated to working full-time to identify and investigate cancer clusters.

2 Twenty-two Years of Cancer Cluster Investigations at the Centers for Disease Control, Glyn G. Caldwell, American Journal of Epidemiology, Vol. 132, Suppl. No. 1, 1990

The North Dakota Department of Health and the North Dakota Cancer Registry reviewed information relating to a potential cancer cluster in a northeastern county of the state from 2000 to 2001. The final analysis concluded that the reported cancer cluster did not identify an unusual increase in a particular type of cancer. The specific cancers that were reported did not identify an unusually high incidence of a specific type of cancer within a geographic boundary.

How Are Suspected Cancer Clusters Investigated in North Dakota?

North Dakota residents who are concerned about a possible cancer cluster should contact the North Dakota Cancer Registry located in the North Dakota Department of Health. The cancer registry follows a procedure in which increasingly specific information is obtained and analyzed in stages. The following information is likely to be requested:

- Information about the potential cluster: type(s) of cancer, number of cases, suspected exposure(s) and suspected geographic area/ time period.
- Information about each person with cancer in the potential cluster: name, address, telephone number, gender, race, age, occupation(s) and area(s) lived in/ length of time.
- Information about each case of cancer: type of cancer, date of diagnosis, age at diagnosis, metastatic sites and physician contact.

The state cancer registry collects data on cancer incidence (the number of new cancer cases reported). The data in the registry can be used to compare expected cancer rates in certain categories – such as a geographic area, age or racial group – with rates reported in a suspected cancer cluster to determine whether there is a true excess of cases.

When a suspected cancer cluster is first reported, the cancer registry gathers information about the suspected cluster and gives the inquirer general information about cancer clusters. The vast majority of suspected cancer clusters are resolved at this initial contact because concerned individuals realize that what seemed like a cancer cluster is not a true cluster.

If there is a need for further evaluation, the cancer registry attempts to verify the reported diagnoses by contacting patients and relatives and obtaining medical records. It compares the number of cases in the suspected cancer cluster with information in census data and cancer (tumor) registries. It also reviews the scientific literature to establish whether the reported cancer(s) has been linked to the suspected exposure.

The cancer registry may gather additional information to help decide whether to conduct a comprehensive epidemiological study. Most state health departments report that fewer than 5 percent of cancer cluster investigations reach the final stage of actually conducting the comprehensive study.

An example of the cancer cluster inquiry data collection form is included on the following page.

CANCER CLUSTER/IDENTIFYING INFORMATION

NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF HEALTH PROMOTION & EDUCATION
SFN 51874 (10-99)

{PRIVATE }Inquiry received from	
Address	
Phone	
Date Received	
Date Inquiry Closed	

Issues of Concern	
ND Geographic area cancer located	
Length of time involved with cancer	
Info on persons affected -	
Name	
Sex	
Race	
Date of birth	
Occupation	
Address - street, city, county	
Length of time at address at time of diagnosis	
Telephone number	
Type of cancer	
Diagnosis date	
Suspected exposure	
Physician Name	
Medical facility/Physician address	
Other information	

Where Can I Get More Information about Cancer Clusters?

The following publications are suggested as additional sources of information about cancer, in general, and cancer clusters:

- Caldwell GG. Twenty-two years of cancer cluster investigations at the Centers for Disease Control. Am J Epidemiol 1990;132(1 Suppl):S43-7.
- Cartwright RA. Cluster investigations: are they worth it? MJA:1999;171(4):172.
- Gawande A. The Cancer-Cluster Myth. The New Yorker 1999;74:34-38.
- CDC. Guidelines for Investigating Clusters of Health Events. MMWR Morb
- Mortal Wkly Rep. 1990 Jul 27;39 (RR-11):1-23.
- Johnson K. Cancer clusters are difficult to nail down. USA Today 1999; Apr 13:8D.
- Sachs S. Public clamor puts focus on 'clusters' in cancer research. New York Times 1998; Sep 21:Sect. A:1 (col 6).
- Ward DE. Cancer clusters, Frontiers, Spring/Summer 1999;12-15,28.
- In addition, two issues of the CDC's Morbidity and Mortality Weekly Report (MMWR), published during its 50th Anniversary Year (1997), provide updated editorial notes on prior MMWR articles dealing with cancer cluster investigations:
- February 7, 1997: Vol. 46/No. 5 Epidemiologic Notes and Reports
- Angiosarcoma of the Liver among Polyvinyl Chloride Workers — Kentucky
- July 25, 1997: Vol. 46/No. 29 Acute Childhood Leukemia — Columbus, Ohio, Burkitt's Lymphoma — Winchester, Virginia

Additional information sources about cancer are available from the National Cancer Institute (NCI). The following information services are available to help you:

Cancer Information Service (CIS)

- Provides accurate, up-to-date information about cancer to patients and their families, health professionals and the general public. Information specialists translate the latest scientific information into understandable language and respond in English, Spanish, or on TTY equipment.

  Toll-free: 1.800.4.CANCER (1.800.422.6237)

  TTY: 1.800.332.8615

Internet

These websites may be useful:

- http://www.nci.nih.gov – NCI's primary website; contains information about the Institute and its programs.
- http://cancernet.nci.nih.gov – CancerNet; contains material for health professionals, patients and the public about cancer treatment, screening, prevention, genetics, supportive care, and clinical trials, and CANCERLIT (a bibliographic database).
- http://cancertrials.nci.nih.gov – NCI's comprehensive clinical trials

information center for patients, health professionals and the public; includes information about understanding clinical trials, deciding whether to participate in clinical trials and finding specific clinical trials, as well as research news and other resources.

E-mail

- CancerMail – Includes NCI information about cancer treatment, screening, prevention, genetics and supportive care. To obtain a contents list, send e-mail to cancermail@icicc.nci.nih.gov with the word "help" in the body of the message.

Fax

- CancerFax – Includes NCI information about cancer treatment, screening, prevention, genetics and supportive care. To obtain a contents list, dial 301.402.5874 or 1.800.624.2511 from a touch-tone telephone and follow the recorded instructions.

Current Cancer Statistics

The five most frequent cancers (invasive and in situ) in North Dakota residents for the diagnosis year of 1998 were:

1) Prostate – 519 cases
2) Female Breast – 471 cases
3) Colorectal – 469 cases
4) Lung – 377 cases
5) Bladder – 159 cases

While this report includes data about all cancer sites, the following information highlights the signs, symptoms or risk factors of the five most frequent cancers in North Dakota during 1998[3]:

- **Prostate cancer** – A total of 519 men were diagnosed with prostate cancer and 119 residents died. Prostate cancer was the seventh leading cause of death for men.

  Signs and Symptoms: Early prostate cancer usually produces no symptoms and is found by a PSA test and/or a digital rectal examination. Some prostate cancers can weaken or interrupt the urine stream, causing inability to urinate, difficulty in starting or stopping the urine flow, the need to urinate more frequently, blood in the urine or continual pain in the lower back, pelvis or thighs. Most of these symptoms are nonspecific and are similar to those caused by benign conditions.

  Risk Factors: The chance of having prostate cancer increases rapidly after age 50. More than 75 percent of all prostate cancers are diagnosed in men older than 65. Black Americans have the highest prostate cancer incidence rate. Studies suggest that a high dietary fat diet also may be a factor. Regular physical activity and a healthy weight may help reduce prostate cancer risk.

- **Breast cancer** – In 1998, 471 women were diagnosed with breast cancer and 110 residents died. Twelve percent were diagnosed at the in situ stage and 57 percent with localized disease. For North Dakota women, breast cancer is the most frequently reported cancer and is the second leading cause of death (following lung cancer, which is the leading cause of cancer-related death for North Dakota women). Female breast cancer also was the second most common cancer diagnosed.

  Signs and Symptoms: The earliest sign of breast cancer is an abnormality that shows up on a mammogram before it can be felt by the woman or her physician. Later signs and symptoms may include a lump, thickening, swelling, distortion or tenderness, skin irritation, nipple pain, ulceration or retraction.

  Risk Factors: The single most important factor in developing breast cancer is age. Some additional risk factors include a

3 Information about cancer signs, symptoms and risk factors come from "Cancer Facts and Figures," an annual publication on cancer from the American Cancer Society.

personal or family history of breast cancer, biopsy-confirmed atypical hyperplasia, a long menstrual history, obesity after menopause, recent use of oral contraceptives or post-menopausal estrogens or progestins, never having children or having a first child after age 30, or consumption of alcoholic beverages.

- **Colorectal cancer** – In 1998, 469 residents were diagnosed with colorectal cancer; of those, 44 percent were diagnosed with regional disease. A total of 143 residents died from colorectal cancer. Colorectal cancer was the third most common cancer diagnosed.

  Signs and Symptoms: A change in bowel habits that lasts for more than a few days, rectal bleeding, pain, or blood in the stool.

  Risk Factors: A personal or family history of colorectal cancer or polyps, smoking, physical inactivity, obesity, high-fat and/or low fiber diet, alcohol consumption and low intake of fruits and vegetables.

- **Lung cancer** – In 1998, 377 residents were diagnosed with lung cancer and 326 died. About 41 percent were diagnosed with distant disease. Lung cancer was the fourth most common cancer diagnosed and is the leading cause of cancer death in North Dakota.

  Signs and Symptoms: A persistent cough, chest pain, shortness of breath, blood-streaked sputum, recurring pneumonia or bronchitis.

  Risk Factors: Tobacco smoking is the most important risk factor. Nonsmokers who breathe second-hand smoke (environmental tobacco smoke) also are at increased risk for lung cancer. Other factors include tuberculosis and exposure to certain industrial substances; certain organic chemicals; asbestos; radon; radiation from occupational, medical or environmental sources; and air pollution.

- **Bladder cancer** – In 1998, 159 residents were diagnosed with bladder cancer, of which 48 percent were diagnosed with localized stage disease. Twenty-seven deaths were attributed to bladder cancer.

  Signs and Symptoms: Some of the common symptoms include blood in the urine, pain during urination, frequent urination or feeling the need to urinate.

  Risk Factors: Smoking is the greatest risk factor for bladder cancer. Chemicals used in the industrial workplace – such as dye, rubber, leather, textile, paint or print industries – may cause the workers to develop bladder cancer. Other risks include race, age and previous history of bladder cancer.

Appendix A

Introduction and Technical Preface

Age-adjusted incidence and mortality rates for specific geographic areas (i.e., regions) may be compared to determine whether differences exist among the areas. It is important to note that rates based upon small numbers of events for a given period of time or for a sparsely populated geographic area must be viewed with caution. A small number of events result in considerable random variation in the rate estimate, thus limiting their usefulness. Therefore, if the number of cancer events (new cases or deaths) is five or fewer, then the calculated rate is considered unstable. A caret (^) in the tables denotes an unstable rate. When the rate is considered unstable, it is not shown.

Since cancer rates tend to vary with age, and since populations vary with respect to their age distribution, incidence and mortality rates are age-adjusted to allow comparison of rates between different populations (i.e., regional boundaries). Age-adjustment allows rates to be compared among population groups with different age distributions. Age-adjusted rates are calculated by the direct method, using the age distribution of the 1970 United States standard population. All age-adjusted rates are expressed as events per 100,000 individuals per year. By convention, incidence rates usually are calculated with only invasive cases in the numerator. However, incidence rates for bladder cancer include in situ cases.

Wherever possible, age-adjusted rates include their corresponding standard error and 95 percent confidence interval, because the data may be affected by random variation. A standard error and/or confidence interval can be used to describe that range of variation. The confidence interval describes the range of rates, which have a desired probability of containing the “true” rate. By convention, confidence intervals are calculated at the 95 percent level in this report. Different confidence levels can be calculated from the standard error.

Although mortality data, when published separately, commonly use the 1940 U.S. standard population for age-adjusting, the mortality data in this report uses the 1970 U.S. standard population. This was done so age-adjusted incidence and mortality rates could be compared directly. However, caution must be taken when comparing the age-adjusted mortality rates in this report to age-adjusted mortality rates published elsewhere.

List of Statistical Tables

The following statistical tables provide more detailed cancer information.

Table 1: North Dakota Cancer Incidence by Cancer Type and Sex

This table provides age-adjusted cancer incidence rates for various types of cancers. The statistics are shown for males, females and both sexes combined. The statistics also are shown for individual years (1997 and 1998), as well as both years combined.

Table 2: North Dakota Cancer Incidence by County and Region

This table provides age-adjusted cancer incidence rates for various types of cancers. The statistics are shown for North Dakota's counties and regions. A region is an aggregation of counties. The statistics also are shown for individual years (1997 and 1998), as well as both years combined.

Table 3: Distribution of Stage at Diagnosis by Cancer Type

This table provides a percentage distribution of the stage of diagnosis for various types of cancers. The statistics are shown for individual years (1997 and 1998), as well as both years combined.

Table 1: North Dakota Cancer Mortality by Cancer Type and Sex

This table provides age-adjusted cancer mortality rates for various types of cancers. The statistics are shown for males, females and both sexes combined. The statistics also are shown for individual years (1997 and 1998), as well as both years combined.

Table 2: North Dakota Cancer Mortality by County and Region

This table provides age-adjusted cancer mortality rates for various types of cancers. The statistics are shown for North Dakota's counties and regions. A region is an aggregation of counties. The statistics also are shown for individual years (1997 and 1998) as well as both years combined.

Table 1: North Dakota Cancer Incidence by Cancer Type and Sex

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
All Sites	Total	372.43	4.99	6076	451.03	7.97	3334	312.02	6.37	2742
	1997	379.19	7.13	3083	463.29	11.41	1715	314.80	9.09	1368
	1998	365.67	6.97	2993	438.78	11.12	1619	309.23	8.91	1374
Oral Cavity and Pharynx	Total	9.16	0.80	143	13.15	1.39	94	6.02	0.91	49
	1997	8.41	1.09	65	12.47	1.92	44	5.07	1.18	21
	1998	9.92	1.17	78	13.82	2.00	50	6.96	1.38	28
Lip	Total	2.99	0.44	50	5.84	0.91	43	0.60	0.24	7
	1997	2.42	0.56	21	4.47	1.12	17	^	^	^
	1998	3.56	0.69	29	7.21	1.44	26	^	^	^
Tongue	Total	1.25	0.29	20	1.37	0.44	10	1.24	0.42	10
	1997	1.19	0.41	9	1.48	0.67	5	^	^	^
	1998	1.31	0.42	11	1.26	0.59	5	1.52	0.65	6
Salivary Gland	Total	1.21	0.29	20	1.27	0.41	10	1.34	0.44	10
	1997	1.41	0.44	11	1.38	0.63	5	1.52	0.66	6
	1998	1.01	0.36	9	1.15	0.53	5	^	^	^
Floor of Mouth	Total	0.47	0.18	7	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	^	^	^	^	^
Gum and Other Mouth	Total	0.83	0.24	13	^	^	^	1.04	0.36	9
	1997	0.64	0.30	5	^	^	^	^	^	^
	1998	1.02	0.37	8	^	^	^	1.58	0.62	7
Nasopharynx	Total	0.33	0.15	5	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	^	^	^	^	^
Tonsil	Total	0.98	0.28	12	1.49	0.50	9	^	^	^
	1997	0.77	0.35	5	1.62	0.73	5	^	~	^
	1998	1.18	0.45	7	^	^	^	^	^	^
Oropharynx	Total	^	^	^	^	^	^	^	~	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^

Rates are per 100,000; Rates are age-adjusted to the 1970 US population *~ Statistic could not be calculated.* *^ Statistic not displayed due to fewer than 5 cases.*

Table 1: North Dakota Cancer Incidence by Cancer Type and Sex (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Hypopharynx	Total	0.47	0.18	7	^	^	^	^	^	^
	1997	^	^	^	^	~	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^
Other Oral Cavity and Pharynx	Total	0.36	0.17	5	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	~	^
Digestive System	Total	69.92	2.10	1240	89.26	3.50	681	53.77	2.49	559
	1997	70.63	2.99	624	93.07	5.05	355	52.08	3.48	269
	1998	69.21	2.95	616	85.45	4.84	326	55.45	3.57	290
Esophagus	Total	3.75	0.50	62	7.41	1.02	56	0.73	0.30	6
	1997	4.18	0.74	35	8.96	1.58	34	^	^	^
	1998	3.32	0.66	27	5.87	1.28	22	1.14	0.52	5
Stomach	Total	5.48	0.58	101	8.64	1.08	67	2.80	0.54	34
	1997	6.43	0.88	59	11.80	1.78	46	1.88	0.59	13
	1998	4.53	0.74	42	5.48	1.22	21	3.72	0.91	21
Small Intestine	Total	1.03	0.26	18	1.26	0.41	10	0.89	0.34	8
	1997	1.18	0.38	11	1.68	0.65	7	^	^	^
	1998	0.89	0.35	7	^	^	^	^	^	^
Colon and Rectum	Total	47.03	1.72	832	57.31	2.81	435	38.34	2.11	397
	1997	46.17	2.42	406	56.58	3.97	213	37.33	2.95	193
	1998	47.89	2.45	426	58.04	3.99	222	39.35	3.01	204
Colon excluding Rectum	Total	34.89	1.47	631	40.87	2.36	314	29.78	1.83	317
	1997	33.97	2.06	304	39.84	3.31	152	29.03	2.60	152
	1998	35.81	2.09	327	41.90	3.37	162	30.52	2.59	165
Cecum	Total	7.68	0.67	148	8.64	1.06	70	6.96	0.87	78
	1997	8.17	1.00	76	9.69	1.63	37	6.83	1.24	39
	1998	7.18	0.89	72	7.59	1.35	33	7.08	1.23	39
Appendix	Total	0.42	0.16	7	0.62	0.28	5	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^

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Table 1: North Dakota Cancer Incidence by Cancer Type and Sex (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Ascending Colon	Total	6.43	0.62	119	6.95	0.96	54	5.88	0.80	65
	1997	7.50	0.95	69	7.82	1.46	30	7.00	1.24	39
	1998	5.36	0.79	50	6.08	1.26	24	4.77	1.01	26
Hepatic Flexure	Total	2.34	0.39	41	3.22	0.67	24	1.56	0.42	17
	1997	1.51	0.43	14	2.08	0.72	9	1.20	0.56	5
	1998	3.16	0.64	27	4.36	1.14	15	1.92	0.62	12
Transverse Colon	Total	3.40	0.45	63	3.75	0.71	29	3.04	0.58	34
	1997	3.59	0.67	32	3.77	1.02	14	3.29	0.86	18
	1998	3.21	0.61	31	3.73	0.99	15	2.80	0.77	16
Splenic Flexure	Total	0.91	0.24	15	1.06	0.38	8	0.82	0.32	7
	1997	0.62	0.27	6	1.20	0.55	5	^	^	^
	1998	1.20	0.41	9	^	^	^	1.46	0.61	6
Descending Colon	Total	2.43	0.39	42	3.11	0.66	23	1.84	0.46	19
	1997	2.73	0.60	23	2.98	0.92	11	2.54	0.79	12
	1998	2.13	0.52	19	3.24	0.95	12	1.15	0.47	7
Sigmoid Colon	Total	9.16	0.78	153	11.19	1.26	82	7.41	0.94	71
	1997	8.00	1.03	66	9.64	1.67	35	6.69	1.29	31
	1998	10.31	1.16	87	12.75	1.90	47	8.12	1.37	40
Large Intestine, NOS	Total	2.13	0.35	43	2.33	0.55	19	2.02	0.48	24
	1997	1.35	0.39	14	1.86	0.68	8	1.06	0.50	6
	1998	2.91	0.59	29	2.80	0.87	11	2.98	0.81	18
Rectum and Rectosigmoid Junction	Total	12.14	0.90	201	16.44	1.53	121	8.56	1.04	80
	1997	12.20	1.27	102	16.74	2.19	61	8.30	1.39	41
	1998	12.08	1.28	99	16.14	2.14	60	8.83	1.54	39
Rectosigmoid Junction	Total	2.96	0.45	49	3.60	0.71	27	2.42	0.56	22
	1997	2.20	0.53	19	2.22	0.80	8	2.09	0.68	11
	1998	3.71	0.72	30	4.99	1.18	19	2.74	0.89	11
Rectum	Total	9.18	0.78	152	12.83	1.35	94	6.15	0.87	58
	1997	10.00	1.15	83	14.52	2.04	53	6.21	1.21	30
	1998	8.36	1.06	69	11.15	1.78	41	6.08	1.25	28

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Table 1: North Dakota Cancer Incidence by Cancer Type and Sex (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Anus, Anal Canal and Anorectum	Total	0.54	0.19	9	^	^	^	0.78	0.30	7
	1997	^	^	^	^	^	^	^	^	^
	1998	0.68	0.31	5	^	^	^	^	^	^
Liver and Intrahepatic Bile Duct	Total	1.93	0.35	32	2.76	0.61	21	1.24	0.40	11
	1997	1.39	0.42	12	2.07	0.75	8	^	^	^
	1998	2.47	0.57	20	3.45	0.97	13	1.65	0.65	7
Liver	Total	1.28	0.28	22	2.00	0.52	15	0.66	0.27	7
	1997	1.33	0.42	11	1.90	0.73	7	^	^	^
	1998	1.23	0.38	11	2.10	0.75	8	^	^	^
Intrahepatic Bile Duct	Total	0.64	0.21	10	0.77	0.32	6	^	^	^
	1997	^	^	^	^	^	^	^	~	^
	1998	1.23	0.42	9	1.36	0.61	5	^	^	^
Gallbladder	Total	1.01	0.25	18	^	^	^	1.30	0.38	14
	1997	0.99	0.36	8	^	^	^	1.52	0.61	7
	1998	1.03	0.35	10	^	^	^	1.08	0.47	7
Other Biliary	Total	0.67	0.19	15	1.31	0.40	11	^	^	^
	1997	0.66	0.25	8	1.52	0.58	7	^	^	^
	1998	0.67	0.28	7	^	^	^	^	^	^
Pancreas	Total	7.65	0.69	140	8.63	1.08	67	6.89	0.89	73
	1997	9.06	1.07	80	9.61	1.61	37	8.66	1.45	43
	1998	6.25	0.86	60	7.64	1.44	30	5.12	1.03	30
Retroperitoneum	Total	0.35	0.16	5	0.71	0.32	5	^	~	^
	1997	^	~	^	^	~	^	^	~	^
	1998	0.69	0.32	5	1.41	0.64	5	^	~	^
Peritoneum, Omentum and Mesentery	Total	0.34	0.15	5	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	~	^	^	^	^
Other Digestive Organs	Total	^	^	^	^	^	^	^	^	^
	1997	^	~	^	^	~	^	^	~	^
	1998	^	^	^	^	^	^	^	^	^

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Table 1: North Dakota Cancer Incidence by Cancer Type and Sex (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Respiratory System	Total	52.41	1.90	815	71.97	3.20	523	36.61	2.23	292
	1997	52.14	2.67	406	71.71	4.53	259	36.03	3.12	147
	1998	52.69	2.69	409	72.23	4.53	264	37.19	3.20	145
Nose, Nasal Cavity and Middle Ear	Total	^	^	^	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	~	^	^	^	^
Larynx	Total	3.65	0.51	53	6.51	0.98	45	1.07	0.39	8
	1997	3.77	0.74	27	6.85	1.45	23	^	^	^
	1998	3.52	0.70	26	6.17	1.33	22	^	^	^
Lung and Bronchus	Total	48.04	1.81	749	64.19	3.02	468	35.21	2.19	281
	1997	47.72	2.55	372	63.44	4.25	230	34.98	3.07	142
	1998	48.35	2.57	377	64.94	4.29	238	35.44	3.12	139
Pleura	Total	0.45	0.17	8	0.94	0.36	7	^	^	^
	1997	0.54	0.26	5	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	~	^
Trachea, Mediastinum and Other Respiratory Organs	Total	^	^	^	^	^	^	^	~	^
	1997	^	~	^	^	~	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^
Bones and Joints	Total	1.26	0.31	17	1.17	0.42	8	1.35	0.47	9
	1997	0.85	0.36	6	^	^	^	^	^	^
	1998	1.66	0.51	11	1.89	0.79	6	1.42	0.66	5
Soft Tissue including Heart	Total	2.95	0.45	49	4.38	0.80	32	1.68	0.46	17
	1997	3.37	0.69	27	5.73	1.29	21	1.43	0.65	6
	1998	2.53	0.58	22	3.04	0.95	11	1.94	0.65	11
Skin excluding Basal and Squamous	Total	8.52	0.76	136	10.91	1.24	80	6.46	0.93	56
	1997	9.07	1.12	72	12.20	1.86	45	6.19	1.30	27
	1998	7.97	1.04	64	9.62	1.65	35	6.73	1.34	29
Melanomas of the Skin	Total	7.48	0.72	118	9.19	1.14	67	6.01	0.91	51
	1997	7.67	1.03	61	9.94	1.67	37	5.59	1.25	24
	1998	7.30	1.00	57	8.44	1.56	30	6.42	1.32	27

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Table 1: North Dakota Cancer Incidence by Cancer Type and Sex (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Other Non-Epithelial Skin	Total	1.04	0.26	18	1.72	0.49	13	0.45	0.22	5
	1997	1.40	0.44	11	2.26	0.82	8	^	^	^
	1998	0.67	0.28	7	1.18	0.54	5	^	^	^
Breast	Total	53.25	1.89	855	0.81	0.33	6	100.59	3.64	849
	1997	55.47	2.75	441	1.30	0.59	5	104.58	5.27	436
	1998	51.03	2.61	414	^	^	^	96.59	5.02	413
Female Genital System	Total	22.82	1.26	352	^	~	^	43.52	2.43	352
	1997	23.30	1.81	177	^	~	^	44.48	3.49	177
	1998	22.35	1.75	175	^	~	^	42.57	3.37	175
Cervix	Total	3.25	0.48	48	^	~	^	6.39	0.95	48
	1997	3.17	0.69	22	^	~	^	6.23	1.35	22
	1998	3.33	0.67	26	^	~	^	6.55	1.33	26
Corpus and Uterus, NOS	Total	11.61	0.90	178	^	~	^	22.00	1.73	178
	1997	12.24	1.31	93	^	~	^	23.28	2.53	93
	1998	10.97	1.23	85	^	~	^	20.73	2.35	85
Corpus	Total	11.06	0.88	170	^	~	^	20.94	1.68	170
	1997	11.52	1.27	88	^	~	^	21.86	2.44	88
	1998	10.60	1.21	82	^	~	^	20.03	2.31	82
Uterus, NOS	Total	0.54	0.20	8	^	~	^	1.06	0.39	8
	1997	0.72	0.32	5	^	~	^	1.43	0.65	5
	1998	^	^	^	^	~	^	^	^	^
Ovary	Total	6.56	0.67	101	^	~	^	12.48	1.30	101
	1997	6.69	0.96	52	^	~	^	12.68	1.85	52
	1998	6.43	0.95	49	^	~	^	12.28	1.83	49
Vagina	Total	0.43	0.16	8	^	~	^	0.77	0.30	8
	1997	^	^	^	^	~	^	^	^	^
	1998	^	^	^	^	~	^	^	^	^
Vulva	Total	0.72	0.21	13	^	~	^	1.36	0.40	13
	1997	0.59	0.27	5	^	~	^	1.13	0.53	5
	1998	0.84	0.31	8	^	~	^	1.59	0.60	8

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Table 1: North Dakota Cancer Incidence by Cancer Type and Sex (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Other Female Genital Organs	Total	^	^	^	^	~	^	^	^	^
	1997	^	^	^	^	~	^	^	^	^
	1998	^	^	^	^	~	^	^	^	^
Male Genital System	Total	68.95	2.14	1107	150.64	4.61	1107	^	~	^
	1997	70.01	3.05	565	153.16	6.56	565	^	~	^
	1998	67.88	3.01	542	148.11	6.47	542	^	~	^
Prostate	Total	65.72	2.09	1059	144.24	4.51	1059	^	~	^
	1997	66.74	2.97	541	146.73	6.42	541	^	~	^
	1998	64.71	2.94	518	141.75	6.34	518	^	~	^
Testis	Total	2.66	0.43	39	5.18	0.84	39	^	~	^
	1997	2.82	0.62	21	5.49	1.21	21	^	~	^
	1998	2.50	0.59	18	4.87	1.16	18	^	~	^
Penis	Total	0.45	0.17	7	0.96	0.37	7	^	~	^
	1997	^	^	^	^	^	^	^	~	^
	1998	0.62	0.28	5	1.31	0.59	5	^	~	^
Other Male Genital Organs	Total	^	^	^	^	^	^	^	~	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^
Urinary System	Total	29.94	1.40	496	48.20	2.60	358	14.68	1.36	138
	1997	29.62	1.96	249	49.54	3.69	187	13.14	1.82	62
	1998	30.27	2.01	247	46.87	3.65	171	16.23	2.01	76
Urinary Bladder	Total	18.44	1.09	317	32.11	2.10	243	7.11	0.91	74
	1997	18.27	1.52	158	32.04	2.95	123	6.99	1.30	35
	1998	18.61	1.55	159	32.18	3.00	120	7.23	1.28	39
Kidney and Renal Pelvis	Total	10.77	0.87	166	14.99	1.48	107	7.20	0.99	59
	1997	10.77	1.21	85	16.69	2.18	61	5.82	1.26	24
	1998	10.76	1.23	81	13.29	1.99	46	8.59	1.52	35
Ureter	Total	0.50	0.18	8	0.83	0.34	6	^	^	^
	1997	^	^	^	^	^	^	^	~	^
	1998	0.73	0.30	6	^	^	^	^	^	^

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Table 1: North Dakota Cancer Incidence by Cancer Type and Sex (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Other Urinary Organs	Total	0.24	0.11	5	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	~	^
Eye and Orbit	Total	^	^	^	^	^	^	^	^	^
	1997	^	^	^	^	~	^	^	^	^
	1998	^	^	^	^	^	^	^	~	^
Brain and Other Nervous System	Total	6.09	0.66	90	6.25	0.96	44	6.05	0.94	46
	1997	6.59	0.98	49	6.41	1.39	22	6.93	1.41	27
	1998	5.58	0.90	41	6.09	1.32	22	5.17	1.25	19
Brain	Total	5.95	0.66	88	6.10	0.95	43	5.92	0.93	45
	1997	6.45	0.97	48	6.10	1.36	21	6.93	1.41	27
	1998	5.45	0.89	40	6.09	1.32	22	4.90	1.22	18
Cranial Nerves Other Nervous System	Total	^	^	^	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	~	^	^	^	^
Endocrine System	Total	5.59	0.62	87	2.02	0.54	15	9.10	1.12	72
	1997	5.98	0.91	46	2.95	0.91	11	9.12	1.59	35
	1998	5.20	0.84	41	^	^	^	9.08	1.57	37
Thyroid	Total	5.04	0.59	78	1.60	0.47	12	8.43	1.07	66
	1997	5.51	0.87	42	2.10	0.76	8	8.99	1.59	34
	1998	4.57	0.79	36	^	^	^	7.86	1.45	32
Other Endocrine including Thymus	Total	0.55	0.19	9	^	^	^	0.67	0.30	6
	1997	^	^	^	^	^	^	^	^	^
	1998	0.63	0.30	5	^	~	^	1.22	0.59	5
Lymphomas	Total	16.90	1.08	271	21.86	1.78	158	12.28	1.27	113
	1997	17.21	1.55	137	21.83	2.51	79	12.97	1.88	58
	1998	16.59	1.50	134	21.89	2.51	79	11.60	1.72	55
Hodgkins Disease	Total	2.69	0.46	36	3.30	0.71	22	2.06	0.58	14
	1997	1.89	0.56	12	2.44	0.87	8	^	^	^
	1998	3.50	0.73	24	4.15	1.13	14	2.80	0.93	10

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Table 1: North Dakota Cancer Incidence by Cancer Type and Sex (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Hodgkins - Nodal	Total	2.64	0.46	35	3.19	0.71	21	2.06	0.58	14
	1997	1.78	0.55	11	2.23	0.85	7	^	^	^
	1998	3.50	0.73	24	4.15	1.13	14	2.80	0.93	10
Hodgkins - Extranodal	Total	^	^	^	^	^	^	^	~	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	~	^	^	~	^	^	~	^
Non-Hodgkins Lymphomas	Total	14.20	0.98	235	18.56	1.63	136	10.23	1.13	99
	1997	15.32	1.44	125	19.39	2.35	71	11.65	1.75	54
	1998	13.09	1.31	110	17.74	2.24	65	8.80	1.45	45
Non-Hodgkins - Nodal	Total	10.18	0.83	166	13.51	1.40	98	7.19	0.96	68
	1997	10.48	1.21	83	13.54	1.98	49	7.82	1.46	34
	1998	9.87	1.14	83	13.48	1.97	49	6.56	1.25	34
Non-Hodgkins - Extranodal	Total	4.03	0.51	69	5.05	0.83	38	3.04	0.60	31
	1997	4.84	0.79	42	5.85	1.27	22	3.83	0.95	20
	1998	3.21	0.64	27	4.26	1.08	16	2.24	0.73	11
Multiple Myeloma	Total	4.81	0.56	81	4.85	0.81	37	4.78	0.78	44
	1997	4.27	0.76	34	3.91	1.06	14	4.51	1.08	20
	1998	5.34	0.81	47	5.79	1.23	23	5.04	1.11	24
Leukemias	Total	10.31	0.84	166	14.35	1.44	104	6.89	0.94	62
	1997	11.68	1.26	95	15.89	2.13	59	8.27	1.48	36
	1998	8.94	1.10	71	12.82	1.94	45	5.52	1.16	26
Lymphocytic Leukemia	Total	4.92	0.58	78	6.46	0.98	46	3.64	0.69	32
	1997	6.05	0.93	47	7.80	1.52	28	4.59	1.12	19
	1998	3.80	0.71	31	5.11	1.23	18	2.69	0.78	13
Acute Lymphocytic Leukemia	Total	0.81	0.26	10	0.87	0.40	5	0.75	0.35	5
	1997	1.38	0.50	8	1.75	0.80	5	^	^	^
	1998	^	^	^	^	~	^	^	^	^
Chronic Lymphocytic Leukemia	Total	3.84	0.50	64	5.17	0.85	38	2.73	0.57	26
	1997	4.40	0.76	37	5.82	1.27	22	3.26	0.89	15
	1998	3.28	0.65	27	4.51	1.14	16	2.19	0.70	11

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Table 1: North Dakota Cancer Incidence by Cancer Type and Sex (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Other Lymphocytic Leukemia	Total	^	^	^	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	~	^
Myeloid Leukemia	Total	4.07	0.53	66	6.02	0.93	44	2.42	0.56	22
	1997	4.10	0.74	35	6.00	1.29	23	2.65	0.83	12
	1998	4.04	0.76	31	6.04	1.34	21	2.19	0.77	10
Acute Myeloid Leukemia	Total	2.94	0.45	48	4.27	0.78	31	1.79	0.48	17
	1997	2.78	0.60	24	4.16	1.07	16	1.66	0.64	8
	1998	3.11	0.67	24	4.38	1.15	15	1.92	0.71	9
Chronic Myeloid Leukemia	Total	0.97	0.26	16	1.59	0.47	12	^	^	^
	1997	1.00	0.36	9	1.52	0.64	6	^	^	^
	1998	0.94	0.36	7	1.66	0.68	6	^	^	^
Other Myeloid Leukemia	Total	^	^	^	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	~	^	^	~	^	^	~	^
Acute Monocytic Leukemia	Total	^	^	^	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	^	^	^	^	^
Other Leukemia	Total	1.11	0.27	18	1.55	0.47	11	0.69	0.27	7
	1997	1.45	0.43	12	1.88	0.72	7	1.03	0.47	5
	1998	0.76	0.32	6	^	^	^	^	^	^
Other Acute Leukemia	Total	0.26	0.12	5	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	~	^	^	^	^
Aleukemic, Subleukemic and NOS	Total	0.85	0.24	13	1.43	0.46	10	^	^	^
	1997	1.03	0.37	8	1.65	0.68	6	^	^	^
	1998	0.66	0.31	5	^	^	^	^	^	^
Miscellaneous	Total	7.98	0.71	143	8.45	1.07	65	7.61	0.96	78
	1997	8.74	1.06	76	9.71	1.64	36	7.77	1.38	40
	1998	7.23	0.94	67	7.18	1.37	29	7.45	1.33	38

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Table 1: North Dakota Cancer Incidence by Cancer Type and Sex (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Invalid Value(s)	Total	1.43	0.30	26	2.64	0.59	21	0.47	0.25	5
	1997	1.72	0.49	13	2.98	0.92	11	^	^	^
	1998	1.15	0.34	13	2.30	0.74	10	^	^	^

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Incidence Table 2: North Dakota Cancer Incidence by County and Region

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
State of North Dakota	Total	153.49	3.16	2660	190.55	5.16	1430	127.20	3.99	1230
	1997	150.26	4.39	1320	189.22	7.24	715	122.22	5.49	605
	1998	156.72	4.54	1340	191.88	7.35	715	132.18	5.80	625
Region I	Total	164.96	14.53	143	212.35	24.38	80	134.34	18.22	63
	1997	176.82	21.16	77	236.54	36.09	45	142.72	26.88	32
	1998	153.09	19.93	66	188.15	32.78	35	125.96	24.61	31
Divide	Total	121.85	28.57	20	190.06	53.05	14	70.09	29.05	6
	1997	140.41	41.64	12	250.23	79.69	10	^	^	^
	1998	103.29	39.12	8	^	^	^	^	^	^
McKenzie	Total	181.67	34.63	29	269.96	63.54	19	114.96	37.36	10
	1997	191.98	50.87	15	259.31	88.92	9	147.93	61.10	6
	1998	171.36	47.01	14	280.60	90.79	10	^	^	^
Williams	Total	169.04	18.36	94	200.79	29.94	47	151.49	23.92	47
	1997	179.41	26.61	50	219.24	43.81	26	160.42	35.10	24
	1998	158.66	25.31	44	182.35	40.81	21	142.56	32.51	23
Region II	Total	144.19	8.01	372	163.30	12.49	183	131.77	10.61	189
	1997	153.41	11.67	199	185.46	18.93	103	129.50	14.72	96
	1998	134.96	10.96	173	141.14	16.31	80	134.05	15.29	93
Burke	Total	236.92	53.87	24	345.30	98.42	15	131.24	46.41	9
	1997	220.04	72.17	11	380.47	138.37	9	^	^	^
	1998	253.79	80.00	13	310.12	139.99	6	193.11	78.25	7
Bottineau	Total	132.53	22.34	46	185.41	39.93	27	89.74	22.71	19
	1997	133.14	31.08	24	199.82	57.49	15	79.91	29.67	9
	1998	131.92	32.10	22	171.00	55.42	12	99.57	34.38	10
McHenry	Total	120.78	23.11	32	119.66	31.95	15	120.73	33.41	17
	1997	115.47	31.29	16	135.22	46.59	9	93.09	41.20	7
	1998	126.10	34.03	16	104.10	43.73	6	148.37	52.60	10
Mountrail	Total	124.45	25.29	29	138.25	36.64	15	120.10	37.05	14
	1997	183.39	43.16	21	203.71	63.08	11	172.53	61.68	10
	1998	65.52	26.39	8	^	^	^	^	^	^

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Incidence Table 2: North Dakota Cancer Incidence by County and Region (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Pierce	Total	164.75	31.30	37	184.82	48.05	17	156.99	44.45	20
	1997	172.54	47.10	18	232.45	81.63	9	123.35	54.64	9
	1998	156.96	41.23	19	137.19	50.70	8	190.62	70.12	11
Renville	Total	46.78	21.03	6	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^
Ward	Total	153.32	11.34	198	167.85	17.83	91	147.56	15.26	107
	1997	161.45	16.44	105	178.97	26.21	48	152.64	21.70	57
	1998	145.19	15.63	93	156.74	24.20	43	142.48	21.45	50
Region III	Total	160.05	11.49	230	184.58	17.93	115	139.78	14.94	115
	1997	160.95	16.09	119	178.58	24.77	56	145.75	21.30	63
	1998	159.16	16.40	111	190.58	25.92	59	133.81	20.94	52
Benson	Total	102.14	22.21	24	80.20	29.47	8	116.40	31.22	16
	1997	67.68	24.16	9	^	^	^	102.24	38.93	8
	1998	136.60	37.27	15	138.20	54.59	7	130.56	48.83	8
Cavalier	Total	122.37	25.15	28	152.58	40.94	15	101.86	32.60	13
	1997	93.85	29.59	12	112.70	47.05	6	82.08	39.66	6
	1998	150.90	40.68	16	192.45	67.01	9	121.64	51.74	7
Eddy	Total	152.42	37.39	21	216.12	65.76	13	99.53	37.56	8
	1997	164.23	52.32	12	268.78	101.86	8	^	^	^
	1998	140.61	53.42	9	163.46	83.20	5	^	^	^
Ramsey	Total	169.39	22.27	73	199.01	35.24	35	141.92	28.25	38
	1997	174.20	31.42	39	191.41	48.68	17	155.96	40.82	22
	1998	164.58	31.57	34	206.60	50.96	18	127.87	39.07	16
Rolette	Total	248.38	32.09	63	287.39	51.30	32	224.37	42.39	31
	1997	267.18	46.84	34	306.64	75.00	17	242.20	61.54	17
	1998	229.59	43.88	29	268.13	70.00	15	206.55	58.30	14
Towner	Total	120.18	31.24	21	154.35	46.39	12	103.10	47.41	9
	1997	161.68	55.07	13	181.00	72.09	7	164.20	91.46	6
	1998	78.68	29.49	8	127.70	58.39	5	^	^	^

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Incidence Table 2: North Dakota Cancer Incidence by County and Region (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Region IV	Total	168.35	9.20	377	204.15	14.91	196	146.72	12.00	181
	1997	160.96	12.55	186	196.41	20.59	95	138.50	16.04	91
	1998	175.74	13.46	191	211.89	21.55	101	154.95	17.86	90
Grand Forks	Total	168.53	12.33	202	197.07	20.18	97	152.77	15.99	105
	1997	166.73	17.37	100	184.91	27.48	46	160.31	23.37	54
	1998	170.34	17.51	102	209.23	29.55	51	145.24	21.84	51
Nelson	Total	201.92	34.09	45	246.97	51.41	26	166.96	46.58	19
	1997	145.56	40.91	17	183.75	63.20	10	115.83	54.24	7
	1998	258.28	54.55	28	310.18	81.10	16	218.09	75.75	12
Pembina	Total	148.73	22.58	50	194.89	38.10	28	115.35	27.10	22
	1997	155.04	30.67	29	216.02	55.78	16	109.07	32.58	13
	1998	142.43	33.14	21	173.76	51.90	12	121.64	43.32	9
Walsh	Total	166.62	20.51	80	200.65	31.45	45	145.64	28.22	35
	1997	144.02	24.78	40	205.37	45.32	23	91.58	23.69	17
	1998	189.22	32.69	40	195.94	43.60	22	199.69	51.23	18
Region V	Total	154.76	7.23	503	188.60	11.73	266	131.19	9.27	237
	1997	140.97	9.66	233	182.24	16.10	131	113.46	12.27	102
	1998	168.55	10.75	270	194.96	17.06	135	148.92	13.89	135
Cass	Total	174.14	9.70	343	213.16	16.21	175	148.25	12.21	168
	1997	164.90	13.32	163	204.28	22.43	84	140.15	16.85	79
	1998	183.39	14.11	180	222.05	23.43	91	156.35	17.68	89
Ransom	Total	151.57	31.01	33	185.38	44.06	20	124.05	45.69	13
	1997	98.01	29.90	12	208.02	61.73	12	^	~	^
	1998	205.13	54.34	21	162.75	62.87	8	248.10	91.38	13
Richland	Total	137.32	17.95	69	169.41	28.29	39	114.97	23.63	30
	1997	120.67	23.47	32	150.54	35.36	19	102.31	32.71	13
	1998	153.96	27.17	37	188.28	44.18	20	127.64	34.11	17
Sargent	Total	132.27	31.87	19	144.67	47.29	10	125.86	45.18	9
	1997	114.92	39.50	9	159.73	65.40	6	^	^	^
	1998	149.62	50.04	10	^	^	^	171.75	75.26	6

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Incidence Table 2: North Dakota Cancer Incidence by County and Region (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Steele	Total	61.61	25.71	6	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^
Traill	Total	101.30	19.72	33	131.71	34.00	18	78.05	22.33	15
	1997	77.16	22.34	14	99.12	35.85	8	66.52	31.54	6
	1998	125.44	32.52	19	164.30	57.78	10	89.59	31.62	9
Region VI	Total	153.07	8.67	388	209.32	14.73	229	111.05	10.33	159
	1997	148.80	12.00	190	198.68	20.44	107	109.70	13.93	83
	1998	157.35	12.51	198	219.96	21.21	122	112.39	15.26	76
Barnes	Total	142.31	19.88	68	188.68	32.79	39	110.04	24.92	29
	1997	102.24	22.68	27	145.96	39.53	16	69.47	25.77	11
	1998	182.37	32.67	41	231.39	52.33	23	150.60	42.67	18
Dickey	Total	142.16	29.37	30	173.84	46.09	17	113.13	37.44	13
	1997	111.79	36.23	12	126.45	54.36	6	96.44	48.29	6
	1998	172.53	46.24	18	221.24	74.45	11	129.83	57.23	7
Foster	Total	191.49	40.73	28	216.30	59.61	15	183.87	58.97	13
	1997	167.99	52.34	13	240.10	92.68	8	116.27	57.46	5
	1998	215.00	62.41	15	192.50	75.01	7	251.48	103.00	8
Griggs	Total	150.26	34.84	24	227.84	66.78	15	84.09	29.31	9
	1997	152.72	47.81	13	244.20	99.63	8	80.41	36.53	5
	1998	147.80	50.69	11	211.49	88.95	7	^	^	^
LaMoure	Total	89.88	23.34	19	125.49	37.90	12	70.66	31.79	7
	1997	91.76	33.26	10	139.98	53.71	7	^	^	^
	1998	88.00	32.77	9	111.00	53.48	5	^	^	^
Logan	Total	156.95	44.23	15	277.64	86.83	12	^	^	^
	1997	198.04	67.04	10	312.27	123.27	7	^	^	^
	1998	115.86	57.70	5	243.01	122.33	5	^	~	^
McIntosh	Total	188.20	33.21	42	235.88	53.08	24	154.18	43.08	18
	1997	232.99	51.35	27	246.09	82.31	12	230.15	67.89	15
	1998	143.41	42.12	15	225.67	67.03	12	^	^	^

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Incidence Table 2: North Dakota Cancer Incidence by County and Region (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Stutsman	Total	175.30	16.70	125	288.33	33.02	81	96.21	15.62	44
	1997	171.84	23.93	58	268.05	46.19	36	101.42	22.75	22
	1998	178.75	23.29	67	308.61	47.19	45	91.00	21.39	22
Wells	Total	138.92	26.35	37	117.54	33.18	14	156.57	40.17	23
	1997	165.83	42.75	20	134.76	53.57	7	188.68	64.10	13
	1998	112.01	30.80	17	100.33	39.18	7	124.45	48.42	10
Region VII	Total	151.69	7.19	477	191.36	12.04	259	122.12	8.82	218
	1997	153.63	10.17	243	191.03	16.86	131	124.98	12.61	112
	1998	149.75	10.17	234	191.69	17.19	128	119.27	12.34	106
Burleigh	Total	160.36	11.40	207	205.86	19.96	107	127.36	13.46	100
	1997	156.97	15.82	103	190.20	27.02	50	129.33	18.81	53
	1998	163.75	16.43	104	221.51	29.39	57	125.40	19.24	47
Emmons	Total	122.66	28.98	21	151.66	43.31	13	95.40	38.38	8
	1997	140.22	40.32	14	142.25	54.17	7	146.13	62.42	7
	1998	105.10	41.65	7	161.08	67.58	6	^	^	^
Grant	Total	104.12	26.95	16	171.14	49.95	12	^	^	^
	1997	106.85	41.31	7	155.28	69.66	5	^	^	^
	1998	101.40	34.63	9	186.99	71.61	7	^	^	^
Kidder	Total	160.67	41.30	17	204.11	67.30	10	116.37	46.43	7
	1997	136.39	49.83	8	^	^	^	^	^	^
	1998	184.95	65.89	9	275.46	115.71	6	^	^	^
McLean	Total	163.96	22.73	59	182.45	33.73	32	149.38	31.16	27
	1997	178.72	34.66	30	235.53	56.84	19	126.97	40.78	11
	1998	149.21	29.41	29	129.38	36.35	13	171.79	47.13	16
Mercer	Total	202.97	31.31	47	261.84	53.46	25	154.08	36.10	22
	1997	167.40	40.36	19	245.92	72.50	12	95.37	38.67	7
	1998	238.54	47.88	28	277.76	78.59	13	212.78	60.97	15
Morton	Total	145.56	15.81	90	173.43	25.85	46	133.52	21.28	44
	1997	164.64	23.84	51	197.78	39.24	26	155.44	32.88	25
	1998	126.47	20.78	39	149.09	33.65	20	111.59	27.03	19

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Incidence Table 2: North Dakota Cancer Incidence by County and Region (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Oliver	Total	111.87	46.36	6	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^
Sheridan	Total	65.80	25.38	7	118.75	49.37	6	^	^	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	^	^	^	^	^
Sioux	Total	157.03	62.36	7	213.59	100.99	5	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^
Region VIII	Total	138.11	11.14	170	191.14	19.40	102	101.50	13.41	68
	1997	122.71	15.14	73	182.92	27.42	47	79.56	16.93	26
	1998	153.51	16.35	97	199.35	27.44	55	123.44	20.79	42
Adams	Total	133.82	33.93	18	197.05	59.42	12	94.64	42.12	6
	1997	143.84	50.34	10	213.53	84.11	7	^	^	^
	1998	123.80	45.50	8	180.58	83.96	5	^	^	^
Billings	Total	^	^	^	^	^	^	^	~	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^
Bowman	Total	146.93	34.67	20	182.23	56.00	11	134.13	48.36	9
	1997	108.03	42.67	7	^	^	^	^	^	^
	1998	185.84	54.65	13	210.77	80.77	7	193.09	84.57	6
Dunn	Total	154.96	37.13	19	252.34	70.47	14	64.09	28.71	5
	1997	151.28	56.57	8	271.14	108.10	7	^	^	^
	1998	158.64	48.12	11	233.53	90.44	7	^	^	^
Golden Valley	Total	131.40	51.32	8	^	^	^	140.12	75.99	5
	1997	^	^	^	^	^	^	^	^	^
	1998	145.01	72.15	5	^	^	^	^	^	^
Hettinger	Total	152.31	38.89	18	177.53	61.39	9	139.80	54.92	9
	1997	^	^	^	^	^	^	^	^	^
	1998	203.73	58.71	14	209.29	89.38	6	214.56	88.50	8

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Incidence Table 2: North Dakota Cancer Incidence by County and Region (continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Slope	Total	^	^	^	^	^	^	^	~	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^
Stark	Total	133.50	15.55	80	180.60	27.18	46	101.68	18.68	34
	1997	119.85	20.51	37	152.06	34.83	20	100.74	25.71	17
	1998	147.14	23.38	43	209.14	41.74	26	102.62	27.10	17

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Incidence Table 3: Distribution of Stage at Diagnosis by Cancer Type

		Total Cases	In situ	Localized	Regional	Distant	Unstaged
All Sites	Total	6369	6.34%	42.93%	21.98%	17.21%	11.54%
	1997	3238	6.73%	41.32%	21.62%	17.48%	12.85%
	1998	3131	5.94%	44.59%	22.36%	16.93%	10.19%
Oral Cavity and Pharynx	Total	149	4.03%	53.02%	28.86%	2.68%	11.41%
	1997	67	2.99%	47.76%	37.31%	2.99%	8.96%
	1998	82	4.88%	57.32%	21.95%	2.44%	13.41%
Lip	Total	56	10.71%	80.36%	0.00%	0.00%	8.93%
	1997	23	8.70%	73.91%	0.00%	0.00%	17.39%
	1998	33	12.12%	84.85%	0.00%	0.00%	3.03%
Tongue	Total	20	0.00%	40.00%	45.00%	0.00%	15.00%
	1997	9	0.00%	33.33%	55.56%	0.00%	11.11%
	1998	11	0.00%	45.45%	36.36%	0.00%	18.18%
Salivary Gland	Total	20	0.00%	45.00%	40.00%	0.00%	15.00%
	1997	11	0.00%	45.45%	45.45%	0.00%	9.09%
	1998	9	0.00%	44.44%	33.33%	0.00%	22.22%
Floor of Mouth	Total	7	0.00%	42.86%	42.86%	14.29%	0.00%
	1997	^	0.00%	66.67%	33.33%	0.00%	0.00%
	1998	^	0.00%	25.00%	50.00%	25.00%	0.00%
Gum and Other Mouth	Total	13	0.00%	46.15%	38.46%	0.00%	15.38%
	1997	5	0.00%	80.00%	20.00%	0.00%	0.00%
	1998	8	0.00%	25.00%	50.00%	0.00%	25.00%
Nasopharynx	Total	5	0.00%	0.00%	60.00%	40.00%	0.00%
	1997	^	0.00%	0.00%	33.33%	66.67%	0.00%
	1998	^	0.00%	0.00%	100.00%	0.00%	0.00%
Tonsil	Total	12	0.00%	50.00%	50.00%	0.00%	0.00%
	1997	5	0.00%	20.00%	80.00%	0.00%	0.00%
	1998	7	0.00%	71.43%	28.57%	0.00%	0.00%
Oropharynx	Total	^	0.00%	25.00%	50.00%	0.00%	25.00%
	1997	^	0.00%	0.00%	100.00%	0.00%	0.00%
	1998	^	0.00%	33.33%	33.33%	0.00%	33.33%

^ *Statistic not displayed due to fewer than 5 cases.*

Incidence Table 3: Distribution of Stage at Diagnosis by Cancer Type (Continued)

		Total Cases	In situ	Localized	Regional	Distant	Unstaged
Hypopharynx	Total	7	0.00%	14.29%	42.86%	14.29%	28.57%
	1997	^	0.00%	0.00%	100.00%	0.00%	0.00%
	1998	^	0.00%	25.00%	0.00%	25.00%	50.00%
Other Oral Cavity and Pharynx	Total	5	0.00%	0.00%	80.00%	0.00%	20.00%
	1997	^	0.00%	0.00%	100.00%	0.00%	0.00%
	1998	^	0.00%	0.00%	0.00%	0.00%	100.00%
Digestive System	Total	1333	6.90%	26.33%	40.66%	15.00%	11.10%
	1997	673	7.13%	26.00%	39.38%	15.60%	11.89%
	1998	660	6.67%	26.67%	41.97%	14.39%	10.30%
Esophagus	Total	64	3.13%	14.06%	35.94%	28.13%	18.75%
	1997	37	5.41%	18.92%	29.73%	27.03%	18.92%
	1998	27	0.00%	7.41%	44.44%	29.63%	18.52%
Stomach	Total	102	0.98%	16.67%	36.27%	18.63%	27.45%
	1997	59	0.00%	11.86%	35.59%	20.34%	32.20%
	1998	43	2.33%	23.26%	37.21%	16.28%	20.93%
Small Intestine	Total	18	0.00%	5.56%	72.22%	16.67%	5.56%
	1997	11	0.00%	0.00%	72.73%	18.18%	9.09%
	1998	7	0.00%	14.29%	71.43%	14.29%	0.00%
Colon and Rectum	Total	920	9.57%	31.41%	44.02%	9.78%	5.22%
	1997	451	9.98%	31.93%	42.57%	9.98%	5.54%
	1998	469	9.17%	30.92%	45.42%	9.59%	4.90%
Colon excluding Rectum	Total	690	8.55%	31.01%	45.22%	10.29%	4.93%
	1997	335	9.25%	31.04%	43.28%	11.04%	5.37%
	1998	355	7.89%	30.99%	47.04%	9.58%	4.51%
Cecum	Total	159	6.92%	27.67%	45.91%	16.35%	3.14%
	1997	84	9.52%	27.38%	39.29%	19.05%	4.76%
	1998	75	4.00%	28.00%	53.33%	13.33%	1.33%
Appendix	Total	7	0.00%	14.29%	28.57%	28.57%	28.57%
	1997	^	0.00%	0.00%	25.00%	50.00%	25.00%
	1998	^	0.00%	33.33%	33.33%	0.00%	33.33%

^ *Statistic not displayed due to fewer than 5 cases.*

Incidence Table 3: Distribution of Stage at Diagnosis by Cancer Type (Continued)

		Total Cases	In situ	Localized	Regional	Distant	Unstaged
Ascending Colon	Total	125	4.80%	34.40%	52.80%	5.60%	2.40%
	1997	74	6.76%	33.78%	55.41%	4.05%	0.00%
	1998	51	1.96%	35.29%	49.02%	7.84%	5.88%
Hepatic Flexure	Total	43	4.65%	30.23%	48.84%	11.63%	4.65%
	1997	16	12.50%	31.25%	37.50%	12.50%	6.25%
	1998	27	0.00%	29.63%	55.56%	11.11%	3.70%
Transverse Colon	Total	73	13.70%	31.51%	43.84%	6.85%	4.11%
	1997	38	15.79%	28.95%	47.37%	5.26%	2.63%
	1998	35	11.43%	34.29%	40.00%	8.57%	5.71%
Splenic Flexure	Total	15	0.00%	33.33%	66.67%	0.00%	0.00%
	1997	6	0.00%	50.00%	50.00%	0.00%	0.00%
	1998	9	0.00%	22.22%	77.78%	0.00%	0.00%
Descending Colon	Total	47	10.64%	21.28%	51.06%	14.89%	2.13%
	1997	25	8.00%	20.00%	48.00%	20.00%	4.00%
	1998	22	13.64%	22.73%	54.55%	9.09%	0.00%
Sigmoid Colon	Total	176	13.07%	36.93%	40.91%	7.39%	1.70%
	1997	74	10.81%	39.19%	40.54%	6.76%	2.70%
	1998	102	14.71%	35.29%	41.18%	7.84%	0.98%
"Large Intestine, NOS"	Total	45	4.44%	22.22%	26.67%	13.33%	33.33%
	1997	14	0.00%	21.43%	7.14%	14.29%	57.14%
	1998	31	6.45%	22.58%	35.48%	12.90%	22.58%
Rectum and Rectosigmoid Junction	Total	230	12.61%	32.61%	40.43%	8.26%	6.09%
	1997	116	12.07%	34.48%	40.52%	6.90%	6.03%
	1998	114	13.16%	30.70%	40.35%	9.65%	6.14%
Rectosigmoid Junction	Total	58	15.52%	24.14%	39.66%	10.34%	10.34%
	1997	23	17.39%	26.09%	34.78%	13.04%	8.70%
	1998	35	14.29%	22.86%	42.86%	8.57%	11.43%
Rectum	Total	172	11.63%	35.47%	40.70%	7.56%	4.65%
	1997	93	10.75%	36.56%	41.94%	5.38%	5.38%
	1998	79	12.66%	34.18%	39.24%	10.13%	3.80%

^ *Statistic not displayed due to fewer than 5 cases.*

Incidence Table 3: Distribution of Stage at Diagnosis by Cancer Type (Continued)

		Total Cases	In situ	Localized	Regional	Distant	Unstaged
Anus, Anal Canal and Anorectum	Total	9	0.00%	77.78%	11.11%	11.11%	0.00%
	1997	^	0.00%	75.00%	25.00%	0.00%	0.00%
	1998	5	0.00%	80.00%	0.00%	20.00%	0.00%
Liver and Intrahepatic Bile Duct	Total	32	0.00%	25.00%	9.38%	34.38%	31.25%
	1997	12	0.00%	16.67%	16.67%	33.33%	33.33%
	1998	20	0.00%	30.00%	5.00%	35.00%	30.00%
Liver	Total	22	0.00%	31.82%	9.09%	27.27%	31.82%
	1997	11	0.00%	18.18%	18.18%	36.36%	27.27%
	1998	11	0.00%	45.45%	0.00%	18.18%	36.36%
Intrahepatic Bile Duct	Total	10	0.00%	10.00%	10.00%	50.00%	30.00%
	1997	^	0.00%	0.00%	0.00%	0.00%	100.00%
	1998	9	0.00%	11.11%	11.11%	55.56%	22.22%
Gallbladder	Total	19	5.26%	26.32%	36.84%	31.58%	0.00%
	1997	9	11.11%	22.22%	22.22%	44.44%	0.00%
	1998	10	0.00%	30.00%	50.00%	20.00%	0.00%
Other Biliary	Total	15	0.00%	13.33%	13.33%	20.00%	53.33%
	1997	8	0.00%	0.00%	25.00%	25.00%	50.00%
	1998	7	0.00%	28.57%	0.00%	14.29%	57.14%
Pancreas	Total	141	0.00%	9.22%	34.04%	31.21%	25.53%
	1997	81	0.00%	12.35%	32.10%	32.10%	23.46%
	1998	60	0.00%	5.00%	36.67%	30.00%	28.33%
Retroperitoneum	Total	5	0.00%	0.00%	40.00%	40.00%	20.00%
	1997	0	0	0	0	0	0
	1998	5	0.00%	0.00%	40.00%	40.00%	20.00%
Peritoneum, Omentum and Mesentery	Total	5	0.00%	0.00%	20.00%	60.00%	20.00%
	1997	^	0.00%	0.00%	0.00%	0.00%	100.00%
	1998	^	0.00%	0.00%	25.00%	75.00%	0.00%
Other Digestive Organs	Total	^	0.00%	0.00%	0.00%	0.00%	100.00%
	1997	0	0	0	0	0	0
	1998	^	0.00%	0.00%	0.00%	0.00%	100.00%

^ *Statistic not displayed due to fewer than 5 cases.*

Incidence Table 3: Distribution of Stage at Diagnosis by Cancer Type (Continued)

		Total Cases	In situ	Localized	Regional	Distant	Unstaged
Respiratory System	Total	818	0.37%	23.11%	26.28%	39.49%	10.76%
1997		409	0.73%	24.94%	21.76%	41.08%	11.49%
1998		409	0.00%	21.27%	30.81%	37.90%	10.02%
Nose, Nasal Cavity and Middle Ear	Total	^	0.00%	25.00%	25.00%	25.00%	25.00%
1997		^	0.00%	0.00%	0.00%	50.00%	50.00%
1998		^	0.00%	50.00%	50.00%	0.00%	0.00%
Larynx	Total	56	5.36%	53.57%	26.79%	7.14%	7.14%
1997		30	10.00%	56.67%	20.00%	6.67%	6.67%
1998		26	0.00%	50.00%	34.62%	7.69%	7.69%
Lung and Bronchus	Total	749	0.00%	21.09%	26.17%	42.32%	10.41%
1997		372	0.00%	22.85%	21.77%	44.09%	11.29%
1998		377	0.00%	19.36%	30.50%	40.58%	9.55%
Pleura	Total	8	0.00%	0.00%	37.50%	12.50%	50.00%
1997		5	0.00%	0.00%	40.00%	20.00%	40.00%
1998		^	0.00%	0.00%	33.33%	0.00%	66.67%
Trachea, Mediastinum and Other Respiratory Organs	Total	^	0.00%	0.00%	0.00%	0.00%	100.00%
1997		0	0	0	0	0	0
1998		^	0.00%	0.00%	0.00%	0.00%	100.00%
Bones and Joints	Total	17	0.00%	47.06%	5.88%	29.41%	17.65%
1997		6	0.00%	33.33%	0.00%	50.00%	16.67%
1998		11	0.00%	54.55%	9.09%	18.18%	18.18%
Soft Tissue including Heart	Total	49	0.00%	30.61%	18.37%	10.20%	40.82%
1997		27	0.00%	25.93%	18.52%	14.81%	40.74%
1998		22	0.00%	36.36%	18.18%	4.55%	40.91%
Skin excluding Basal and Squamous	Total	168	18.45%	61.31%	3.57%	3.57%	13.10%
1997		86	15.12%	60.47%	4.65%	2.33%	17.44%
1998		82	21.95%	62.20%	2.44%	4.88%	8.54%
Melanomas of the Skin	Total	150	20.67%	62.00%	2.67%	4.00%	10.67%
1997		75	17.33%	61.33%	4.00%	2.67%	14.67%
1998		75	24.00%	62.67%	1.33%	5.33%	6.67%

^ *Statistic not displayed due to fewer than 5 cases.*

Incidence Table 3: Distribution of Stage at Diagnosis by Cancer Type (Continued)

		Total Cases	In situ	Localized	Regional	Distant	Unstaged
Other Non-Epithelial Skin	Total	18	0.00%	55.56%	11.11%	0.00%	33.33%
	1997	11	0.00%	54.55%	9.09%	0.00%	36.36%
	1998	7	0.00%	57.14%	14.29%	0.00%	28.57%
Breast	Total	984	13.11%	52.95%	26.52%	3.25%	4.17%
	1997	512	13.87%	48.83%	27.15%	4.30%	5.86%
	1998	472	12.29%	57.42%	25.85%	2.12%	2.33%
Female Genital System	Total	370	4.86%	54.59%	17.03%	13.78%	9.73%
	1997	186	4.84%	51.61%	17.74%	14.52%	11.29%
	1998	184	4.89%	57.61%	16.30%	13.04%	8.15%
Cervix	Total	48	0.00%	50.00%	33.33%	8.33%	8.33%
	1997	22	0.00%	31.82%	40.91%	13.64%	13.64%
	1998	26	0.00%	65.38%	26.92%	3.85%	3.85%
Corpus and Uterus, NOS	Total	186	4.30%	77.42%	9.14%	4.30%	4.84%
	1997	97	4.12%	77.32%	9.28%	4.12%	5.15%
	1998	89	4.49%	77.53%	8.99%	4.49%	4.49%
Corpus	Total	177	3.95%	79.66%	9.04%	4.52%	2.82%
	1997	92	4.35%	79.35%	9.78%	4.35%	2.17%
	1998	85	3.53%	80.00%	8.24%	4.71%	3.53%
Uterus, NOS	Total	9	11.11%	33.33%	11.11%	0.00%	44.44%
	1997	5	0.00%	40.00%	0.00%	0.00%	60.00%
	1998	^	25.00%	25.00%	25.00%	0.00%	25.00%
Ovary	Total	101	0.00%	24.75%	26.73%	35.64%	12.87%
	1997	52	0.00%	19.23%	28.85%	34.62%	17.31%
	1998	49	0.00%	30.61%	24.49%	36.73%	8.16%
Vagina	Total	10	20.00%	20.00%	10.00%	30.00%	20.00%
	1997	6	33.33%	16.67%	0.00%	33.33%	16.67%
	1998	^	0.00%	25.00%	25.00%	25.00%	25.00%
Vulva	Total	21	38.10%	23.81%	4.76%	0.00%	33.33%
	1997	8	37.50%	37.50%	0.00%	0.00%	25.00%
	1998	13	38.46%	15.38%	7.69%	0.00%	38.46%

^ *Statistic not displayed due to fewer than 5 cases.*

Incidence Table 3: Distribution of Stage at Diagnosis by Cancer Type (Continued)

		Total Cases	In situ	Localized	Regional	Distant	Unstaged
Other Female Genital Organs	Total	^	0.00%	50.00%	25.00%	0.00%	25.00%
	1997	^	0.00%	0.00%	0.00%	0.00%	100.00%
	1998	^	0.00%	66.67%	33.33%	0.00%	0.00%
Male Genital System	Total	1111	0.36%	77.05%	9.54%	4.32%	8.73%
	1997	568	0.53%	75.18%	10.21%	4.23%	9.86%
	1998	543	0.18%	79.01%	8.84%	4.42%	7.55%
Prostate	Total	1062	0.28%	77.87%	8.85%	4.33%	8.66%
	1997	543	0.37%	76.06%	9.58%	4.42%	9.58%
	1998	519	0.19%	79.77%	8.09%	4.24%	7.71%
Testis	Total	39	0.00%	64.10%	23.08%	5.13%	7.69%
	1997	21	0.00%	66.67%	23.81%	0.00%	9.52%
	1998	18	0.00%	61.11%	22.22%	11.11%	5.56%
Penis	Total	8	12.50%	37.50%	37.50%	0.00%	12.50%
	1997	^	33.33%	0.00%	33.33%	0.00%	33.33%
	1998	5	0.00%	60.00%	40.00%	0.00%	0.00%
Other Male Genital Organs	Total	^	0.00%	50.00%	0.00%	0.00%	50.00%
	1997	^	0.00%	0.00%	0.00%	0.00%	100.00%
	1998	^	0.00%	100.00%	0.00%	0.00%	0.00%
Urinary System	Total	500	23.40%	44.40%	15.20%	9.20%	7.80%
	1997	250	26.40%	39.20%	15.20%	8.40%	10.80%
	1998	250	20.40%	49.60%	15.20%	10.00%	4.80%
Urinary Bladder	Total	317	35.65%	41.64%	11.04%	2.52%	9.15%
	1997	158	41.14%	34.81%	10.13%	1.27%	12.66%
	1998	159	30.19%	48.43%	11.95%	3.77%	5.66%
Kidney and Renal Pelvis	Total	168	1.19%	49.40%	22.02%	22.02%	5.36%
	1997	85	0.00%	48.24%	22.35%	22.35%	7.06%
	1998	83	2.41%	50.60%	21.69%	21.69%	3.61%
Ureter	Total	9	11.11%	66.67%	22.22%	0.00%	0.00%
	1997	^	33.33%	33.33%	33.33%	0.00%	0.00%
	1998	6	0.00%	83.33%	16.67%	0.00%	0.00%

^ *Statistic not displayed due to fewer than 5 cases.*

Incidence Table 3: Distribution of Stage at Diagnosis by Cancer Type (Continued)

		Total Cases	In situ	Localized	Regional	Distant	Unstaged
Other Urinary Organs	Total	6	16.67%	16.67%	33.33%	16.67%	16.67%
	1997	^	0.00%	25.00%	50.00%	0.00%	25.00%
	1998	^	50.00%	0.00%	0.00%	50.00%	0.00%
Eye and Orbit	Total	^	33.33%	33.33%	0.00%	0.00%	33.33%
	1997	^	0.00%	0.00%	0.00%	0.00%	100.00%
	1998	^	50.00%	50.00%	0.00%	0.00%	0.00%
Brain and Other Nervous System	Total	90	0.00%	42.22%	14.44%	1.11%	42.22%
	1997	49	0.00%	38.78%	24.49%	2.04%	34.69%
	1998	41	0.00%	46.34%	2.44%	0.00%	51.22%
Brain	Total	88	0.00%	42.05%	14.77%	1.14%	42.05%
	1997	48	0.00%	37.50%	25.00%	2.08%	35.42%
	1998	40	0.00%	47.50%	2.50%	0.00%	50.00%
Cranial Nerves Other Nervous System	Total	^	0.00%	50.00%	0.00%	0.00%	50.00%
	1997	^	0.00%	100.00%	0.00%	0.00%	0.00%
	1998	^	0.00%	0.00%	0.00%	0.00%	100.00%
Endocrine System	Total	87	0.00%	66.67%	20.69%	5.75%	6.90%
	1997	46	0.00%	67.39%	23.91%	4.35%	4.35%
	1998	41	0.00%	65.85%	17.07%	7.32%	9.76%
Thyroid	Total	78	0.00%	71.79%	21.79%	5.13%	1.28%
	1997	42	0.00%	69.05%	23.81%	4.76%	2.38%
	1998	36	0.00%	75.00%	19.44%	5.56%	0.00%
Other Endocrine including Thymus	Total	9	0.00%	22.22%	11.11%	11.11%	55.56%
	1997	^	0.00%	50.00%	25.00%	0.00%	25.00%
	1998	5	0.00%	0.00%	0.00%	20.00%	80.00%
Lymphomas	Total	271	0.00%	25.46%	16.61%	43.17%	14.76%
	1997	137	0.00%	26.28%	15.33%	37.23%	21.17%
	1998	134	0.00%	24.63%	17.91%	49.25%	8.21%
Hodgkins Disease	Total	36	0.00%	16.67%	33.33%	38.89%	11.11%
	1997	12	0.00%	25.00%	33.33%	16.67%	25.00%
	1998	24	0.00%	12.50%	33.33%	50.00%	4.17%

^ *Statistic not displayed due to fewer than 5 cases.*

Incidence Table 3: Distribution of Stage at Diagnosis by Cancer Type (Continued)

		Total Cases	In situ	Localized	Regional	Distant	Unstaged
Hodgkins - Nodal	Total	35	0.00%	17.14%	34.29%	40.00%	8.57%
	1997	11	0.00%	27.27%	36.36%	18.18%	18.18%
	1998	24	0.00%	12.50%	33.33%	50.00%	4.17%
Hodgkins - Extranodal	Total	^	0.00%	0.00%	0.00%	0.00%	100.00%
	1997	^	0.00%	0.00%	0.00%	0.00%	100.00%
	1998	0	0	0	0	0	0
Non-Hodgkins Lymphomas	Total	235	0.00%	26.81%	14.04%	43.83%	15.32%
	1997	125	0.00%	26.40%	13.60%	39.20%	20.80%
	1998	110	0.00%	27.27%	14.55%	49.09%	9.09%
Non-Hodgkins - Nodal	Total	166	0.00%	18.67%	16.87%	49.40%	15.06%
	1997	83	0.00%	20.48%	16.87%	42.17%	20.48%
	1998	83	0.00%	16.87%	16.87%	56.63%	9.64%
Non-Hodgkins - Extranodal	Total	69	0.00%	46.38%	7.25%	30.43%	15.94%
	1997	42	0.00%	38.10%	7.14%	33.33%	21.43%
	1998	27	0.00%	59.26%	7.41%	25.93%	7.41%
Multiple Myeloma	Total	81	0.00%	2.47%	0.00%	96.30%	1.23%
	1997	34	0.00%	0.00%	0.00%	100.00%	0.00%
	1998	47	0.00%	4.26%	0.00%	93.62%	2.13%
Leukemias	Total	166	0.00%	0.00%	0.00%	100.00%	0.00%
	1997	95	0.00%	0.00%	0.00%	100.00%	0.00%
	1998	71	0.00%	0.00%	0.00%	100.00%	0.00%
Lymphocytic Leukemia	Total	78	0.00%	0.00%	0.00%	100.00%	0.00%
	1997	47	0.00%	0.00%	0.00%	100.00%	0.00%
	1998	31	0.00%	0.00%	0.00%	100.00%	0.00%
Acute Lymphocytic Leukemia	Total	10	0.00%	0.00%	0.00%	100.00%	0.00%
	1997	8	0.00%	0.00%	0.00%	100.00%	0.00%
	1998	^	0.00%	0.00%	0.00%	100.00%	0.00%
Chronic Lymphocytic Leukemia	Total	64	0.00%	0.00%	0.00%	100.00%	0.00%
	1997	37	0.00%	0.00%	0.00%	100.00%	0.00%
	1998	27	0.00%	0.00%	0.00%	100.00%	0.00%

^ *Statistic not displayed due to fewer than 5 cases.*

Incidence Table 3: Distribution of Stage at Diagnosis by Cancer Type (Continued)

		Total Cases	In situ	Localized	Regional	Distant	Unstaged
Other Lymphocytic Leukemia	Total	^	0.00%	0.00%	0.00%	100.00%	0.00%
	1997	^	0.00%	0.00%	0.00%	100.00%	0.00%
	1998	^	0.00%	0.00%	0.00%	100.00%	0.00%
Myeloid Leukemia	Total	66	0.00%	0.00%	0.00%	100.00%	0.00%
	1997	35	0.00%	0.00%	0.00%	100.00%	0.00%
	1998	31	0.00%	0.00%	0.00%	100.00%	0.00%
Acute Myeloid Leukemia	Total	48	0.00%	0.00%	0.00%	100.00%	0.00%
	1997	24	0.00%	0.00%	0.00%	100.00%	0.00%
	1998	24	0.00%	0.00%	0.00%	100.00%	0.00%
Chronic Myeloid Leukemia	Total	16	0.00%	0.00%	0.00%	100.00%	0.00%
	1997	9	0.00%	0.00%	0.00%	100.00%	0.00%
	1998	7	0.00%	0.00%	0.00%	100.00%	0.00%
Other Myeloid Leukemia	Total	^	0.00%	0.00%	0.00%	100.00%	0.00%
	1997	^	0.00%	0.00%	0.00%	100.00%	0.00%
	1998	0	0	0	0	0	0
Acute Monocytic Leukemia	Total	^	0.00%	0.00%	0.00%	100.00%	0.00%
	1997	^	0.00%	0.00%	0.00%	100.00%	0.00%
	1998	^	0.00%	0.00%	0.00%	100.00%	0.00%
Other Leukemia	Total	18	0.00%	0.00%	0.00%	100.00%	0.00%
	1997	12	0.00%	0.00%	0.00%	100.00%	0.00%
	1998	6	0.00%	0.00%	0.00%	100.00%	0.00%
Other Acute Leukemia	Total	5	0.00%	0.00%	0.00%	100.00%	0.00%
	1997	^	0.00%	0.00%	0.00%	100.00%	0.00%
	1998	^	0.00%	0.00%	0.00%	100.00%	0.00%
Aleukemic, Subleukemic and NOS	Total	13	0.00%	0.00%	0.00%	100.00%	0.00%
	1997	8	0.00%	0.00%	0.00%	100.00%	0.00%
	1998	5	0.00%	0.00%	0.00%	100.00%	0.00%
Miscellaneous	Total	143	0.00%	0.00%	0.00%	6.29%	93.71%
	1997	76	0.00%	0.00%	0.00%	6.58%	93.42%
	1998	67	0.00%	0.00%	0.00%	5.97%	94.03%

^ *Statistic not displayed due to fewer than 5 cases.*

Incidence Table 3: Distribution of Stage at Diagnosis by Cancer Type (Continued)

		Total Cases	In situ	Localized	Regional	Distant	Unstaged
Invalid Value(s)	Total	29	10.34%	68.97%	6.90%	0.00%	13.79%
	1997	16	18.75%	68.75%	0.00%	0.00%	12.50%
	1998	13	0.00%	69.23%	15.38%	0.00%	15.38%

^ *Statistic not displayed due to fewer than 5 cases.*

Mortality Table 1: North Dakota Cancer Mortality by Cancer Type and Sex

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
All Causes of Death	Total	608.18	6.03	11758	778.39	10.30	6019	474.56	7.09	5739
	1997	604.85	8.50	5847	772.01	14.51	2983	472.95	10.02	2864
	1998	611.51	8.54	5911	784.78	14.61	3036	476.16	10.04	2875
All Malignant Cancers	Total	153.49	3.16	2660	190.55	5.16	1430	127.20	3.99	1230
	1997	150.26	4.39	1320	189.22	7.24	715	122.22	5.49	605
	1998	156.72	4.54	1340	191.88	7.35	715	132.18	5.80	625
Oral Cavity and Pharynx	Total	1.91	0.36	31	3.18	0.69	22	0.80	0.29	.09
	1997	2.28	0.57	17	3.81	1.08	13	^	^	^
	1998	1.55	0.44	14	2.56	0.87	9	0.60	0.28	5
Lip	Total	^	^	^	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	^	^	^	^	^
Tongue	Total	0.30	0.13	5	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	~	^
Salivary Gland	Total	^	^	^	^	^	^	^	~	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^
Floor of Mouth	Total	^	^	^	^	^	^	^	~	^
	1997	^	~	^	^	~	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^
Gum and Other Mouth	Total	0.30	0.13	6	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^
Nasopharynx	Total	^	^	^	^	^	^	^	~	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	~	^	^	~	^	^	~	^
Tonsil	Total	^	^	^	^	^	^	^	~	^
	1997	^	~	^	^	~	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Mortality Table 1: North Dakota Cancer Mortality by Cancer Type and Sex (contiuned)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Hypopharynx	Total	^	^	^	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	~	^	^	^	^
Other Oral Cavity and Pharynx	Total	0.52	0.20	7	0.82	0.37	5	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	~	^
Digestive System	Total	36.27	1.49	666	48.87	2.61	369	26.32	1.69	297
	1997	35.26	2.07	327	50.16	3.72	191	23.74	2.24	136
	1998	37.28	2.15	339	47.58	3.66	178	28.90	2.53	161
Esophagus	Total	2.79	0.43	48	5.12	0.85	38	0.92	0.33	10
	1997	2.71	0.58	24	5.71	1.24	22	^	^	^
	1998	2.88	0.63	24	4.53	1.16	16	1.44	0.57	8
Stomach	Total	3.48	0.47	63	6.04	0.94	44	1.25	0.30	19
	1997	4.10	0.73	36	7.56	1.49	27	0.99	0.34	9
	1998	2.87	0.59	27	4.53	1.13	17	1.51	0.49	10
Small Intestine	Total	0.52	0.19	9	^	^	^	0.52	0.25	5
	1997	0.44	0.21	5	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^
Colon and Rectum	Total	15.90	0.98	300	20.93	1.70	160	12.09	1.14	140
	1997	16.25	1.38	157	23.39	2.52	91	11.06	1.50	66
	1998	15.54	1.39	143	18.46	2.28	69	13.13	1.72	74
Colon excluding Rectum	Total	13.73	0.91	259	17.99	1.57	138	10.56	1.07	121
	1997	14.33	1.30	138	20.57	2.36	80	9.81	1.41	58
	1998	13.13	1.28	121	15.40	2.07	58	11.31	1.60	63
Rectum and Rectosigmoid Junction	Total	2.17	0.37	41	2.94	0.64	22	1.53	0.40	19
	1997	1.93	0.48	19	2.82	0.87	11	1.24	0.52	8
	1998	2.41	0.55	22	3.06	0.95	11	1.81	0.62	11
Anus, Anal Canal and Anorectum	Total	^	^	^	^	^	^	^	~	^
	1997	^	~	^	^	~	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Mortality Table 1: North Dakota Cancer Mortality by Cancer Type and Sex (contiuned)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Liver and Intrahepatic Bile Duct	Total	3.04	0.45	50	4.44	0.79	33	2.00	0.51	17
	1997	2.55	0.58	21	3.06	0.91	12	2.35	0.81	9
	1998	3.53	0.69	29	5.83	1.30	21	1.64	0.63	8
Liver	Total	2.34	0.40	38	3.28	0.69	24	1.58	0.45	14
	1997	2.18	0.55	17	2.39	0.82	9	2.13	0.78	8
	1998	2.50	0.57	21	4.18	1.10	15	1.03	0.45	6
Intrahepatic Bile Duct	Total	0.70	0.21	12	1.16	0.40	9	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	1.04	0.38	8	1.65	0.70	6	^	^	^
Gallbladder	Total	0.63	0.19	12	^	^	^	0.97	0.33	10
	1997	0.58	0.26	5	^	~	^	1.05	0.48	5
	1998	0.69	0.27	7	^	^	^	0.89	0.43	5
Other Biliary	Total	0.94	0.24	18	1.34	0.44	10	0.62	0.25	8
	1997	0.72	0.28	8	1.24	0.58	5	^	^	^
	1998	1.15	0.39	10	1.43	0.66	5	0.86	0.44	5
Pancreas	Total	8.33	0.71	154	9.41	1.14	71	7.34	0.88	83
	1997	7.34	0.95	66	8.05	1.53	29	6.48	1.16	37
	1998	9.31	1.05	88	10.76	1.69	42	8.20	1.33	46
Retroperitoneum	Total	^	^	^	^	^	^	^	^	^
	1997	^	^	^	^	~	^	^	^	^
	1998	^	^	^	^	^	^	^	~	^
Peritoneum, Omentum and Mesentery	Total	^	^	^	^	~	^	^	^	^
	1997	^	~	^	^	~	^	^	~	^
	1998	^	^	^	^	~	^	^	^	^
Other Digestive Organs	Total	0.39	0.14	8	0.57	0.26	5	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^
Respiratory System	Total	42.08	1.70	671	59.39	2.93	429	28.49	1.95	242
	1997	41.66	2.37	335	58.39	4.08	212	28.36	2.73	123
	1998	42.49	2.43	336	60.39	4.20	217	28.63	2.80	119

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Mortality Table 1: North Dakota Cancer Mortality by Cancer Type and Sex (contiuned)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Nose, Nasal Cavity and Middle Ear	Total	^	^	^	^	^	^	^	~	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	~	^	^	~	^	^	~	^
Larynx	Total	1.55	0.32	25	2.74	0.62	20	0.61	0.28	5
	1997	2.16	0.54	17	3.83	1.04	14	^	^	^
	1998	0.94	0.35	8	1.64	0.68	6	^	^	^
Lung and Bronchus	Total	40.36	1.66	643	56.42	2.86	407	27.73	1.93	236
	1997	39.43	2.31	317	54.35	3.94	197	27.49	2.68	120
	1998	41.29	2.40	326	58.49	4.13	210	27.98	2.77	116
Pleura	Total	^	^	^	^	^	^	^	~	^
	1997	^	~	^	^	~	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^
Trachea, Mediastinum and Other Respiratory Organs	Total	^	^	^	^	~	^	^	^	^
	1997	^	~	^	^	~	^	^	~	^
	1998	^	^	^	^	~	^	^	^	^
Bones and Joints	Total	0.65	0.23	9	^	^	^	0.74	0.32	6
	1997	0.88	0.38	6	^	^	^	1.30	0.62	5
	1998	^	^	^	^	^	^	^	^	^
Soft Tissue including Heart	Total	1.36	0.30	23	1.68	0.50	12	1.10	0.37	11
	1997	1.36	0.44	11	1.80	0.76	6	0.89	0.43	5
	1998	1.36	0.42	12	1.55	0.65	6	1.30	0.59	6
Skin excluding Basal and Squamous	Total	1.93	0.36	34	2.43	0.63	16	1.42	0.38	18
	1997	2.09	0.53	19	2.72	0.94	9	1.43	0.52	10
	1998	1.78	0.50	15	2.14	0.83	7	1.41	0.56	8
Melanomas of the Skin	Total	1.51	0.32	26	1.91	0.55	13	1.14	0.36	13
	1997	1.52	0.46	13	2.11	0.82	7	0.97	0.46	6
	1998	1.51	0.45	13	1.72	0.72	6	1.31	0.55	7
Other Non-Epithelial Skin	Total	0.42	0.17	8	^	^	^	0.28	0.13	5
	1997	0.57	0.26	6	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Mortality Table 1: North Dakota Cancer Mortality by Cancer Type and Sex (contiuned)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Breast	Total	131.1	0.95	217	^	^	^	23.99	1.79	216
	1997	121.9	1.26	107	^	^	^	21.83	2.36	106
	1998	140.3	1.41	110	^	~	^	26.14	2.69	110
Female Genital System	Total	7.02	0.68	122	^	~	^	12.74	1.28	122
	1997	8.14	1.04	70	^	~	^	14.80	1.96	70
	1998	5.90	0.87	52	^	~	^	10.68	1.64	52
Cervix	Total	1.20	0.30	18	^	~	^	2.26	0.57	18
	1997	1.54	0.49	11	^	~	^	2.93	0.94	11
	1998	0.86	0.34	7	^	~	^	1.60	0.64	7
Corpus and Uterus, NOS	Total	0.98	0.23	22	^	~	^	1.64	0.40	22
	1997	0.85	0.26	11	^	~	^	1.34	0.41	11
	1998	1.12	0.37	11	^	~	^	1.94	0.69	11
Corpus	Total	0.39	0.13	10	^	~	^	0.62	0.20	10
	1997	^	^	^	^	~	^	^	^	^
	1998	0.47	0.19	6	^	~	^	0.74	0.31	6
Uterus, NOS	Total	0.59	0.19	12	^	~	^	1.02	0.35	12
	1997	0.53	0.20	7	^	~	^	0.83	0.32	7
	1998	0.65	0.32	5	^	~	^	1.20	0.61	5
Ovary	Total	4.19	0.53	71	^	~	^	7.65	0.99	71
	1997	4.93	0.81	41	^	~	^	9.04	1.53	41
	1998	3.45	0.67	30	^	~	^	6.25	1.24	30
Vagina	Total	^	^	^	^	~	^	^	^	^
	1997	^	^	^	^	~	^	^	^	^
	1998	^	^	^	^	~	^	^	^	^
Vulva	Total	0.36	0.15	7	^	~	^	0.63	0.28	7
	1997	0.42	0.20	5	^	~	^	0.69	0.34	5
	1998	^	^	^	^	~	^	^	^	^
Other Female Genital Organs	Total	^	^	^	^	~	^	^	^	^
	1997	^	~	^	^	~	^	^	~	^
	1998	^	^	^	^	~	^	^	^	^

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Mortality Table 1: North Dakota Cancer Mortality by Cancer Type and Sex (contiuned)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Male Genital System	Total	10.63	0.74	226	26.69	1.80	226	^	~	^
	1997	9.71	0.99	104	24.40	2.41	104	^	~	^
	1998	11.55	1.10	122	28.99	2.66	122	^	~	^
Prostate	Total	10.49	0.73	223	26.33	1.78	223	^	~	^
	1997	9.71	0.99	104	24.40	2.41	104	^	~	^
	1998	11.26	1.08	119	28.26	2.63	119	^	~	^
Testis	Total	^	^	^	^	^	^	^	~	^
	1997	^	~	^	^	~	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^
Penis	Total	^	^	^	^	^	^	^	~	^
	1997	^	~	^	^	~	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^
Other Male Genital Organs	Total	^	^	^	^	^	^	^	~	^
	1997	^	~	^	^	~	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^
Urinary System	Total	7.09	0.66	131	10.74	1.21	82	4.26	0.68	49
	1997	7.31	0.94	68	11.78	1.80	45	3.84	0.89	23
	1998	6.86	0.91	63	9.70	1.63	37	4.69	1.02	26
Urinary Bladder	Total	3.05	0.43	57	5.42	0.87	41	1.15	0.32	16
	1997	3.13	0.62	30	5.51	1.24	21	1.29	0.49	9
	1998	2.97	0.60	27	5.33	1.21	20	1.01	0.42	7
Kidney and Renal Pelvis	Total	3.93	0.49	72	5.07	0.83	39	3.11	0.59	33
	1997	4.08	0.70	37	6.03	1.28	23	2.55	0.74	14
	1998	3.77	0.68	35	4.11	1.05	16	3.68	0.93	19
Ureter	Total	^	^	^	^	^	^	^	~	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^
Eye and Orbit	Total	^	^	^	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	^	^	^	^	^

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Mortality Table 1: North Dakota Cancer Mortality by Cancer Type and Sex (contiuned)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Brain and Other Nervous System	Total	6.56	0.71	94	6.16	0.98	42	7.08	1.06	52
	1997	5.42	0.91	40	4.58	1.18	16	6.26	1.38	24
	1998	7.69	1.09	54	7.73	1.55	26	7.90	1.59	28
Brain	Total	6.26	0.69	90	6.01	0.97	41	6.64	1.02	49
	1997	5.17	0.89	38	4.58	1.18	16	5.80	1.33	22
	1998	7.35	1.07	52	7.44	1.53	25	7.48	1.54	27
Cranial Nerves Other Nervous System	Total	^	^	^	^	^	^	^	^	^
	1997	^	^	^	^	~	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^
Endocrine System	Total	0.62	0.20	12	^	^	^	1.02	0.36	11
	1997	0.63	0.25	7	^	^	^	0.92	0.41	6
	1998	0.62	0.31	5	^	~	^	1.13	0.60	5
Thyroid	Total	0.36	0.14	8	^	^	^	0.51	0.24	7
	1997	0.38	0.17	5	^	^	^	^	^	^
	1998	^	^	^	^	~	^	^	^	^
Other Endocrine including Thymus	Total	^	^	^	^	~	^	^	^	^
	1997	^	^	^	^	~	^	^	^	^
	1998	^	^	^	^	~	^	^	^	^
Lymphomas	Total	7.42	0.70	125	9.06	1.14	66	6.07	0.86	59
	1997	6.87	0.93	62	8.52	1.51	33	5.62	1.16	29
	1998	7.97	1.05	63	9.60	1.71	33	6.51	1.28	30
Hodgkins Disease	Total	0.49	0.20	6	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^
Non-Hodgkins Lymphomas	Total	6.94	0.67	119	8.56	1.10	63	5.60	0.82	56
	1997	6.53	0.89	60	8.23	1.49	32	5.23	1.09	28
	1998	7.34	1.00	59	8.90	1.63	31	5.98	1.22	28
Multiple Myeloma	Total	2.32	0.38	42	3.40	0.70	25	1.42	0.37	17
	1997	1.92	0.49	17	3.03	0.93	11	0.97	0.42	6
	1998	2.72	0.58	25	3.77	1.04	14	1.87	0.62	11

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Mortality Table 1: North Dakota Cancer Mortality by Cancer Type and Sex (contiuned)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Leukemias	Total	7.82	0.71	136	11.21	1.25	84	5.19	0.79	52
	1997	8.41	1.04	75	12.53	1.85	48	5.52	1.18	27
	1998	7.23	0.97	61	9.90	1.68	36	4.85	1.04	25
Lymphocytic Leukemia	Total	2.56	0.41	45	3.66	0.71	28	1.82	0.48	17
	1997	3.44	0.68	29	4.52	1.12	17	2.82	0.88	12
	1998	1.68	0.45	16	2.79	0.86	11	0.81	0.40	5
Acute Lymphocytic Leukemia	Total	0.57	0.22	7	0.78	0.36	5	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	~	^
Chronic Lymphocytic Leukemia	Total	1.74	0.32	34	2.46	0.56	20	1.32	0.38	14
	1997	2.46	0.54	23	3.52	0.96	14	1.82	0.65	9
	1998	1.01	0.32	11	1.40	0.58	6	0.81	0.40	5
Other Lymphocytic Leukemia	Total	^	^	^	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	~	^
Myeloid Leukemia	Total	3.29	0.46	56	4.85	0.82	36	2.04	0.50	20
	1997	2.85	0.59	27	4.79	1.12	19	1.49	0.61	8
	1998	3.73	0.72	29	4.91	1.21	17	2.60	0.80	12
Acute Myeloid Leukemia	Total	2.56	0.40	45	3.88	0.74	29	1.46	0.39	16
	1997	2.34	0.53	22	4.06	1.04	16	1.09	0.52	6
	1998	2.79	0.60	23	3.71	1.04	13	1.84	0.60	10
Chronic Myeloid Leukemia	Total	0.61	0.22	9	0.70	0.32	5	^	^	^
	1997	0.51	0.25	5	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^
Other Myeloid Leukemia	Total	^	^	^	^	^	^	^	~	^
	1997	^	~	^	^	~	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^
Other Leukemia	Total	1.97	0.35	35	2.71	0.62	20	1.33	0.37	15
	1997	2.12	0.52	19	3.23	0.96	12	1.21	0.51	7
	1998	1.82	0.47	16	2.19	0.79	8	1.44	0.53	8

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Mortality Table 1: North Dakota Cancer Mortality by Cancer Type and Sex (contiuned)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Other Acute Leukemia	Total	1.32	0.30	22	1.82	0.52	13	0.86	0.30	9
	1997	1.65	0.47	14	2.50	0.86	9	0.94	0.47	5
	1998	0.99	0.36	8	^	^	^	^	^	^
Aleukemic, Subleukemic and NOS	Total	0.65	0.19	13	0.89	0.35	7	0.47	0.20	6
	1997	0.47	0.22	5	^	^	^	^	^	^
	1998	0.83	0.31	8	^	^	^	^	^	^
Miscellaneous Malignant Cancer	Total	6.54	0.64	118	6.69	0.97	50	6.48	0.87	68
	1997	6.07	0.88	54	6.37	1.36	23	5.72	1.16	31
	1998	7.02	0.93	64	7.01	1.39	27	7.24	1.30	37

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Mortality Table 2: North Dakota Cancer Mortality by County and Region

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
State of North Dakota	Total	153.49	3.16	2660	190.55	5.16	1430	127.20	3.99	1230
	1997	150.26	4.39	1320	189.22	7.24	715	122.22	5.49	605
	1998	156.72	4.54	1340	191.88	7.35	715	132.18	5.80	625
Region I	Total	164.96	14.53	143	212.35	24.38	80	134.34	18.22	63
	1997	176.82	21.16	77	236.54	36.09	45	142.72	26.88	32
	1998	153.09	19.93	66	188.15	32.78	35	125.96	24.61	31
Divide	Total	121.85	28.57	20	190.06	53.05	14	70.09	29.05	6
	1997	140.41	41.64	12	250.23	79.69	10	^	^	^
	1998	103.29	39.12	8	^	^	^	^	^	^
McKenzie	Total	181.67	34.63	29	269.96	63.54	19	114.96	37.36	10
	1997	191.98	50.87	15	259.31	88.92	9	147.93	61.10	6
	1998	171.36	47.01	14	280.60	90.79	10	^	^	^
Williams	Total	169.04	18.36	94	200.79	29.94	47	151.49	23.92	47
	1997	179.41	26.61	50	219.24	43.81	26	160.42	35.10	24
	1998	158.66	25.31	44	182.35	40.81	21	142.56	32.51	23
Region II	Total	144.19	8.010	372	163.30	12.49	183	131.77	10.61	189
	1997	153.41	11.67	199	185.46	18.93	103	129.50	14.72	96
	1998	134.96	10.96	173	141.14	16.31	80	134.05	15.29	93
Burke	Total	236.92	53.87	24	345.30	98.42	15	131.24	46.41	9
	1997	220.04	72.17	11	380.47	138.37	9	^	^	^
	1998	253.79	80.00	13	310.12	139.99	6	193.11	78.25	7
Bottineau	Total	132.53	22.34	46	185.41	39.93	27	89.74	22.71	19
	1997	133.14	31.08	24	199.82	57.49	15	79.91	29.67	9
	1998	131.92	32.10	22	171.00	55.42	12	99.57	34.38	10
McHenry	Total	120.78	23.11	32	119.66	31.95	15	120.73	33.41	17
	1997	115.47	31.29	16	135.22	46.59	9	93.09	41.20	7
	1998	126.10	34.03	16	104.10	43.73	6	148.37	52.60	10
Mountrail	Total	124.45	25.29	29	138.25	36.64	15	120.10	37.05	14
	1997	183.39	43.16	21	203.71	63.08	11	172.53	61.68	10
	1998	65.52	26.39	8	^	^	^	^	^	^

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Mortality Table 2: North Dakota Cancer Mortality by County and Region (Continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Pierce	Total	164.75	31.30	37	184.82	48.05	17	156.99	44.45	20
	1997	172.54	47.10	18	232.45	81.63	9	123.35	54.64	9
	1998	156.96	41.23	19	137.19	50.70	8	190.62	70.12	11
Renville	Total	46.78	21.03	6	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^
Ward	Total	153.32	11.34	198	167.85	17.83	91	147.56	15.26	107
	1997	161.45	16.44	105	178.97	26.21	48	152.64	21.70	57
	1998	145.19	15.63	93	156.74	24.20	43	142.48	21.45	50
Region III	Total	160.05	11.49	230	184.58	17.93	115	139.78	14.94	115
	1997	160.95	16.09	119	178.58	24.77	56	145.75	21.30	63
	1998	159.16	16.40	111	190.58	25.92	59	133.81	20.94	52
Benson	Total	102.14	22.21	24	80.20	29.47	8	116.40	31.22	16
	1997	67.68	24.16	9	^	^	^	102.24	38.93	8
	1998	136.60	37.27	15	138.2	54.59	7	130.56	48.83	8
Cavalier	Total	122.37	25.15	28	152.58	40.94	15	101.86	32.60	13
	1997	93.85	29.59	12	112.70	47.05	6	82.08	39.66	6
	1998	150.90	40.68	16	192.45	67.01	9	121.64	51.74	7
Eddy	Total	152.42	37.39	21	216.12	65.76	13	99.53	37.56	8
	1997	164.23	52.32	12	268.78	101.86	8	^	^	^
	1998	140.61	53.42	9	163.46	83.20	5	^	^	^
Ramsey	Total	169.39	22.27	73	199.01	35.24	35	141.92	28.25	38
	1997	174.20	31.42	39	191.41	48.68	17	155.96	40.82	22
	1998	164.58	31.57	34	206.60	50.96	18	127.87	39.07	16
Rolette	Total	248.38	32.09	63	287.39	51.30	32	224.37	42.39	31
	1997	267.18	46.84	34	306.64	75.00	17	242.20	61.54	17
	1998	229.59	43.88	29	268.13	70.00	15	206.55	58.30	14
Towner	Total	120.18	31.24	21	154.35	46.39	12	103.10	47.41	9
	1997	161.68	55.07	13	181.00	72.09	7	164.20	91.46	6
	1998	78.68	29.49	8	127.7	58.39	5	^	^	^

Mortality Table 2: North Dakota Cancer Mortality by County and Region (Continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Region IV	Total	168.35	9.20	377	204.15	14.91	196	146.72	12.00	181
	1997	160.96	12.55	186	196.41	20.59	95	138.50	16.04	91
	1998	175.74	13.46	191	211.89	21.55	101	154.95	17.86	90
Grand Forks	Total	168.53	12.33	202	197.07	20.18	97	152.77	15.99	105
	1997	166.73	17.37	100	184.91	27.48	46	160.31	23.37	54
	1998	170.34	17.51	102	209.23	29.55	51	145.24	21.84	51
Nelson	Total	201.92	34.09	45	246.97	51.41	26	166.96	46.58	19
	1997	145.56	40.91	17	183.75	63.20	10	115.83	54.24	7
	1998	258.28	54.55	28	310.18	81.10	16	218.09	75.75	12
Pembina	Total	148.73	22.58	50	194.89	38.10	28	115.35	27.10	22
	1997	155.04	30.67	29	216.02	55.78	16	109.07	32.58	13
	1998	142.43	33.14	21	173.76	51.90	12	121.64	43.32	9
Walsh	Total	166.62	20.51	80	200.65	31.45	45	145.64	28.22	35
	1997	144.02	24.78	40	205.37	45.32	23	91.58	23.69	17
	1998	189.22	32.69	40	195.94	43.60	22	199.69	51.23	18
Regin V	Total	154.76	7.23	503	188.60	11.73	266	131.19	9.27	237
	1997	140.97	9.66	233	182.24	16.10	131	113.46	12.27	102
	1998	168.55	10.75	270	194.96	17.06	135	148.92	13.89	135
Cass	Total	174.14	9.70	343.00	213.16	16.21	175.00	148.25	12.21	168.00
	1997	164.90	13.32	163	204.28	22.43	84	140.15	16.85	79
	1998	183.39	14.11	180	222.05	23.43	91	156.35	17.68	89
Ransom	Total	151.57	31.01	33	185.38	44.06	20	124.05	45.69	13
	1997	98.01	29.90	12	208.02	61.73	12	^	~	^
	1998	205.13	54.34	21	162.75	62.87	8	248.10	91.38	13
Richland	Total	137.32	17.95	69	169.41	28.29	39	114.97	23.63	30
	1997	120.67	23.47	32	150.54	35.36	19	102.31	32.71	13
	1998	153.96	27.17	37	188.28	44.18	20	127.64	34.11	17
Sargent	Total	132.27	31.87	19	144.67	47.29	10	125.86	45.18	9
	1997	114.92	39.50	9	159.73	65.40	6	^	^	^
	1998	149.62	50.04	10	^	^	^	171.75	75.26	6

Mortality Table 2: North Dakota Cancer Mortality by County and Region (Continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Steele	Total	61.61	25.71	6	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^
Traill	Total	101.30	19.72	33	131.71	34.00	18	78.05	22.33	15
	1997	77.16	22.34	14	99.12	35.85	8	66.52	31.54	6
	1998	125.44	32.52	19	164.30	57.78	10	89.59	31.62	9
Region VI	Total	153.07	8.67	388	209.32	14.73	229	111.05	10.33	159
	1997	148.80	12.00	190	198.68	20.44	107	109.70	13.93	83
	1998	157.35	12.51	198	219.96	21.21	122	112.39	15.26	76
Barnes	Total	142.31	19.88	68	188.68	32.79	39	110.04	24.92	29
	1997	102.24	22.68	27	145.96	39.53	16	69.47	25.77	11
	1998	182.37	32.67	41	231.39	52.33	23	150.60	42.67	18
Dickey	Total	142.16	29.37	30	173.84	46.09	17	113.13	37.44	13
	1997	111.79	36.23	12	126.45	54.36	6	96.44	48.29	6
	1998	172.53	46.24	18	221.24	74.45	11	129.83	57.23	7
Foster	Total	191.49	40.73	28	216.30	59.61	15	183.87	58.97	13
	1997	167.99	52.34	13	240.10	92.68	8	116.27	57.46	5
	1998	215.00	62.41	15	192.50	75.01	7	251.48	103.00	8
Griggs	Total	150.26	34.84	24	227.84	66.78	15	84.09	29.31	9
	1997	152.72	47.81	13	244.20	99.63	8	80.41	36.53	5
	1998	147.80	50.69	11	211.49	88.95	7	^	^	^
LaMoure	Total	89.88	23.34	19	125.49	37.90	12	70.66	31.79	7
	1997	91.76	33.26	10	139.98	53.71	7	^	^	^
	1998	88.00	32.77	9	111.00	53.48	5	^	^	^
Logan	Total	156.95	44.23	15	277.64	86.83	12	^	^	^
	1997	198.04	67.04	10	312.27	123.27	7	^	^	^
	1998	115.86	57.70	5	243.01	122.33	5	^	~	^
McIntosh	Total	188.20	33.21	42	235.88	53.08	24	154.18	43.08	18
	1997	232.99	51.35	27	246.09	82.31	12	230.15	67.89	15
	1998	143.41	42.12	15	225.67	67.03	12	^	^	^

Mortality Table 2: North Dakota Cancer Mortality by County and Region (Continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Stutsman	Total	175.30	16.70	125	288.33	33.02	81	96.21	15.62	44
	1997	171.84	23.93	58	268.05	46.19	36	101.42	22.75	22
	1998	178.75	23.29	67	308.61	47.19	45	91.00	21.39	22
Wells	Total	138.92	26.35	37	117.54	33.18	14	156.57	40.17	23
	1997	165.83	42.75	20	134.76	53.57	7	188.68	64.10	13
	1998	112.01	30.80	17	100.33	39.18	7	124.45	48.42	10
Region VII	Total	151.69	7.19	477	191.36	12.04	259	122.12	8.82	218
	1997	153.63	10.17	243	191.03	16.86	131	124.98	12.61	112
	1998	149.75	10.17	234	191.69	17.19	128	119.27	12.34	106
Burleigh	Total	160.36	11.40	207	205.86	19.96	107	127.36	13.46	100
	1997	156.97	15.82	103	190.20	27.02	50	129.33	18.81	53
	1998	163.75	16.43	104	221.51	29.39	57	125.40	19.24	47
Emmons	Total	122.66	28.98	21	151.66	43.31	13	95.40	38.38	8
	1997	140.22	40.32	14	142.25	54.17	7	146.13	62.42	7
	1998	105.10	41.65	7	161.08	67.58	6	^	^	^
Grant	Total	104.12	26.95	16	171.14	49.95	12	^	^	^
	1997	106.85	41.31	7	155.28	69.66	5	^	^	^
	1998	101.40	34.63	9	186.99	71.61	7	^	^	^
Kidder	Total	160.67	41.30	17	204.11	67.30	10	116.37	46.43	7
	1997	136.39	49.83	8	^	^	^	^	^	^
	1998	184.95	65.89	9	275.46	115.71	6	^	^	^
McLean	Total	163.96	22.73	59	182.45	33.73	32	149.38	31.16	27
	1997	178.72	34.66	30	235.53	56.84	19	126.97	40.78	11
	1998	149.21	29.41	29	129.38	36.35	13	171.79	47.13	16
Mercer	Total	202.97	31.31	47	261.84	53.46	25	154.08	36.10	22
	1997	167.40	40.36	19	245.92	72.50	12	95.37	38.67	7
	1998	238.54	47.88	28	277.76	78.59	13	212.78	60.97	15
Morton	Total	145.56	15.81	90	173.43	25.85	46	133.52	21.28	44
	1997	164.64	23.84	51	197.78	39.24	26	155.44	32.88	25
	1998	126.47	20.78	39	149.09	33.65	20	111.59	27.03	19

Mortality Table 2: North Dakota Cancer Mortality by County and Region (Continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Oliver	Total	111.87	46.36	6	^	^	^	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^
Sheridan	Total	65.80	25.38	7	118.75	49.37	6	^	^	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	^	^	^	^	^
Sioux	Total	157.03	62.36	7	213.59	100.99	5	^	^	^
	1997	^	^	^	^	^	^	^	^	^
	1998	^	^	^	^	^	^	^	^	^
Region VIII	Total	138.11	11.14	170	191.14	19.40	102	101.50	13.41	68
	1997	122.71	15.14	73	182.92	27.42	47	79.56	16.93	26
	1998	153.51	16.35	97	199.35	27.44	55	123.44	20.79	42
Adams	Total	133.82	33.93	18	197.05	59.42	12	94.64	42.12	6
	1997	143.84	50.34	10	213.53	84.11	7	^	^	^
	1998	123.80	45.50	8	180.58	83.96	5	^	^	^
Billings	Total	^	^	^	^	^	^	^	~	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^
Bowman	Total	146.93	34.67	20	182.23	56.00	11	134.13	48.36	9
	1997	108.03	42.67	7	^	^	^	^	^	^
	1998	185.84	54.65	13	210.77	80.77	7	193.09	84.57	6
Dunn	Total	154.96	37.13	19	252.34	70.47	14	64.09	28.71	5
	1997	151.28	56.57	8	271.14	108.10	7	^	^	^
	1998	158.64	48.12	11	233.53	90.44	7	^	^	^
Golden Valley	Total	131.40	51.32	8	^	^	^	140.12	75.99	5
	1997	^	^	^	^	^	^	^	^	^
	1998	145.01	72.15	5	^	^	^	^	^	^
Hettinger	Total	152.31	38.89	18	177.53	61.39	9	139.80	54.92	9
	1997	^	^	^	^	^	^	^	^	^
	1998	203.73	58.71	14	209.29	89.38	6	214.56	88.50	8

Mortality Table 2: North Dakota Cancer Mortality by County and Region (Continued)

		Both Sexes			Males			Females		
		Rate	SE	Count	Rate	SE	Count	Rate	SE	Count
Slope	Total	^	^	^	^	^	^	^	~	^
	1997	^	^	^	^	^	^	^	~	^
	1998	^	^	^	^	^	^	^	~	^
Stark	Total	133.50	15.55	80	180.60	27.18	46	101.68	18.68	34
	1997	119.85	20.51	37	152.06	34.83	20	100.74	25.71	17
	1998	147.14	23.38	43	209.14	41.74	26	102.62	27.10	17

Rates are per 100,000; Rates are age-adjusted to the 1970 US population ~ Statistic could not be calculated. ^ Statistic not displayed due to fewer than 5 cases.

Appendix B

Technical Notes

Various measures commonly used in epidemiological studies of cancer are used by the North Dakota Cancer Registry when presenting data on cancer among the state's residents. One measure is the incidence rate, which provides information about the frequency with which cases are occurring in the population over time. Another measure is the mortality rate, which is the rate of deaths due to cancer in the North Dakota population over time.

Age-adjusted rates are calculated to allow comparisons between two different populations (i.e., North Dakota and the U.S.) whose age distributions differ. As a measure of disease severity and/or prognosis, the mortality-to-incidence (M/I) ratio can be used. Under conditions of stable rates, the M/I ratio may be considered as the chance of eventually dying from a specific cancer (at current cure rates); the M/I ratio is a case fatality rate. Values closer to 0 may be interpreted as having a good prognosis whereas values closer to 1.0 may be interpreted as having a poor prognosis.

Often, we present incidence and mortality data across geographic boundaries. This analysis may help target screening and/or educational efforts. However, because the population of our state is relatively small compared to other states and/or geographic regions, some counties with small populations have only a few cases reported. Because small numbers make rates unstable, these data must be interpreted with caution.

We also present the incidence data by stage at the time of diagnosis. For some cancers, early detection through screening has proven beneficial. Cancers such as female breast cancer and colorectal cancer have fewer deaths associated with early detection screening activities.

The years of potential life lost (YPLL) index can be used to measure the burden of cancer. The YPLL quantifies premature mortality from cancer occurring in younger age groups. Lost potential years can be interpreted as lost productive years (both economic and non-economic) that a person dying prematurely of cancer would have contributed to society if he or she had survived. A person dying of cancer at age 35 would have had 30 more years of potential life lost than a person dying of cancer at age 65.

When comparing North Dakota's data with other state or regional data, the reader must use caution when interpreting age-adjusted rates between two populations. Age-adjusted rates take into account the differences between the size and age distribution of each population, thereby facilitating comparisons. However, the interpretation of differences in the rates for a particular type of cancer must be made with caution. There are several reasons why it is difficult to attribute such differences to variation in known risk factors for a specific cancer site. First, the rarity of some cancers can cause the number of cases occurring in some regions to be so small that observed rate estimates may be unstable statistically. Therefore, tests for statistical difference must be

performed to examine whether differences in observed rates are the result of chance. Second, correlations between incidence of a disease and the prevalence of risk factors for that disease in geographical areas can be misleading. To examine the relationships between a risk factor and a disease, detailed analytical epidemiological studies are necessary. Third, for many cancers there is a long time interval between exposure to a risk factor and the diagnosis of the disease. Migration between geographical areas can result in individuals being exposed to a risk factor in one geographical area and then diagnosed in a different geographical area. Fourth, there may be differences between geographical areas with respect to the availability of screening and/or early detection programs. Fifth, it is possible that the completeness of case reporting differs by area of the state.

Age-Adjusted Rates

Since cancer rates tend to vary with age, and since populations vary with respect to their age distribution, incidence and mortality rates are age-adjusted to allow comparison of rates between different populations (i.e., regional boundaries). Age-adjustment allows rates to be compared between population groups with different age distributions. Age-adjusted rates are calculated by the direct method, using the age distribution of the 1970 United States standard population. Under the direct method of age-adjusting, the population was first divided into 18 reasonably homogeneous age groups of five-year intervals. The age-specific rate was calculated for each five-year age group; next, each age-specific rate was weighted by multiplying it by the proportion of a standard population of the respective age group. Lastly, the weighted age-specific rates were summed, giving the resulting age-adjusted rate. Rates are calculated separately for males, females, and the total population using identical weights.

All age-adjusted rates are expressed as events per 100,000 individuals per year. By convention, incidence rates usually are calculated with only invasive cases in the numerator. However, incidence rates for bladder cancer include in situ cases.

Wherever possible, age-adjusted rates include their corresponding standard error and 95 percent confidence interval, because the data may be affected by random variation. A standard error and/or confidence interval can be used to describe that range of variation. The confidence interval describes the range of rates, which have a desired probability of containing the “true” rate. For example, a 95 percent confidence interval for female breast cancer of 108.3 to 118.0 (per 100,000 women) describes the range of the age-adjusted rate, which has a 95 percent probability of containing the “true” age-adjusted rate for female breast cancer if repeated incidence measures were taken in this population. By convention, confidence intervals are calculated at the 95 percent level in this report. Different confidence levels can be calculated from the standard error. The standard error for each age-adjusted incidence and mortality rate is provided in the statistical tables, thereby leaving the construction of different confidence intervals to the individual researcher.

Although mortality data, when published separately, commonly use the 1940 U.S. standard population for age-adjusting, the mortality data in this report uses the 1970 U.S. standard population. This was done so age-adjusted incidence and mortality rates could be compared directly. However, caution must be taken when comparing the age-adjusted mortality rates in this report to age-adjusted mortality rates published elsewhere.

Comparing Age-Adjusted Rates for Statistical Significance

Age-adjusted incidence and mortality rates for specific geographic areas (i.e., regions) may be compared to determine whether differences exist between the areas. It is important to note that rates based on small numbers of events for a given period of time or for a sparsely populated geographic area must be viewed with caution. A small number of events result in considerable random variation in the rate estimate, thus limiting their usefulness. Therefore, if the number of cancer events (new cases or deaths) is five or fewer, then the calculated rate is considered unstable. A carrot (^) in the tables denotes an unstable rate. When the rate is considered unstable, it is not shown.

Testing for differences between two rates (i.e., the state's average rate and an individual region's rate) can be performed by comparing 95 percent confidence intervals for each population. To construct a 95 percent confidence interval, a standard error (SE) for each rate is needed. The following formula can be used to calculate the variance of an age-adjusted rate:[4]

$$SE(AAIR) = [S_a (C_a / L_a^2)(POP_a^2 / POP_{tot}^2)]^{0.5}$$

where SE is the standard error, AAIR is the age-adjusted incidence rate, C_a is the number of events in age group "a" from the study population, L_a is the number of person-years in age group "a" from the study population, POP_a is the population size in age group "a" from the standard population, and POP_{tot} is the total size of the standard population. The 95 percent confidence interval then takes the form of:

Lower Limit: AAIR - 1.96 (SE)

Upper Limit: AAIR + 1.96 (SE)

Rates are considered statistically different if the two 95 percent confidence intervals do not overlap. For example, let's assume North Dakota's AAIR for all cancers combined is 377.1 per 100,000 population with a SE of 3.3 and Region IV's AAIR for all cancers combined is higher at 416.4 per 100,000 population with a SE of 8.1. Plugging these numbers into the above formulas for the upper and lower 95 percent confidence interval limits reveals:

North Dakota's Lower Limit:
377.1 - 1.96(3.3) = 370.7

North Dakota's Upper Limit:
377.1 + 1.96(3.3) = 383.5

Region IV's Lower Limit:
416.4 - 1.96(8.1) = 400.5

Region IV's Upper Limit:
416.4 + 1.96(8.1) = 432.2

4 Goodman, MT and Wilkens, LR, "Calculation and Assessment of Incidence Rates" in Chapter 9 of Central Cancer Registries: Design, Management, and Use (Hardwood Academic Publishers GmbH, Switzerland), 1994.

Since the 95 percent confidence interval for Region IV (400.5, 432.2) does not overlap the state's 95 percent confidence interval (370.7, 383.5), the two age-adjusted rates are considered to be significantly different. The confidence interval describes the range of rates, which have a desired probability of containing the "true" rate if repeated incidence measures were taken in the population.

Case Ascertainment and Completeness

To determine the completeness of reporting, we compared the number of reported cancers to the projected number of cancers for North Dakota (estimated from national data).

The North Dakota Cancer Registry releases annual cancer statistics when the registry's data is estimated to be 95 percent complete for any given cancer reporting year.

Completeness of cancer case ascertainment is estimated by the percentage of expected cases received in any given reporting year. The cancer registry bases its expected number of cases from estimates provided by the American Cancer Society (ACS) estimates. The ACS provides estimates of newly diagnosed invasive cancers and cancer mortality, by site for all states in the United States. The ACS estimates use SEER incidence and mortality figures in the forecasting formula of North Dakota's estimates. Caution must be applied when interpreting case ascertainment data when a forecasting formula utilizing a national index is used. Such a national index may incorrectly estimate any given state's expected cancer incidence and/or mortality figures.

Glossary

Age: The age of the patient (in completed years) at the time of diagnosis or death.

Age-adjusted rate: Since cancer rates tend to vary with age, and since populations vary with respect to their age distribution, incidence and mortality rates are age-adjusted to allow comparison of rates between different populations (i.e., county or regional boundaries). Age-adjustment allows rates to be compared between population groups with different age distributions. In this report, age-adjusted rates are calculated by the direct method, using the age distribution of the 1970 United States standard population. Rates are calculated separately for males, females and the total population. All age-adjusted rates are expressed per 100,000 individuals per year and include rates of invasive cancer only. (Please refer to the Technical Notes for more detail on age-adjustment of rates.)

Age-specific rate: The number of new cases diagnosed per 100,000 individuals over a specified time period for a specified age group. Age-specific rates show the variation in cancer incidence by age. Age groups are divided into five-year age groupings (i.e., 0-4, 5-9, 10-14,..., 75-84, and 85+).

Cancer site: The human organ or system in which the malignancy originates; the anatomical site.

Childhood cancer: Cancer occurring in an individual between the ages of birth and 14 is classified as a childhood cancer. Acute lymphocytic leukemia is the most frequent malignancy of childhood cancer, followed by astrocytomas and neuroblastomas.

Crude rate: The number of new cases of cancer or cancer deaths during the year expressed as a rate per 100,000 people in the population, without regard to the ages of the people.

ICD-9: The ninth revision of the International Classification of Diseases (World Health Organization. International Classification of Diseases. 1975 Revision. Volumes 1 and 2, Geneva, 1997.)

ICD-O: The Second Edition of the International Classification of Diseases for Oncology. A further classification of the ICD-9 designed for use specifically for cancer (World Health Organization. International Classification of Diseases. Second Edition.

Incidence: The number of new cases of a given type of cancer diagnosed during the year.

Mortality: The number of deaths attributed to the particular type of cancer that occurred during the year. Includes deaths of patients diagnosed in earlier years, individuals newly diagnosed during the year, as well as patients for whom a diagnosis of cancer is made only after death.

M/I ratio: The M/I (mortality-to-incidence) ratio provides a measure of disease severity. The M/I ratio is the number of deaths divided by the number of invasive cases (for a particular cancer). The closer a value is to 1.0, the poorer the prognosis for

that cancer. Cancer sites can be classified into three groups according to their M/I ratio: those with a very good prognosis (a ratio of 33 percent or less), those with a fair prognosis (a ratio between 33 percent and 66 percent), and those with a poor prognosis (a ratio greater than 66 percent). Access to early diagnostic and treatment care can impact the M/I ratio.

Stage at diagnosis: Stage at diagnosis refers to how far a cancer has spread from its site of origin when it is diagnosed. There are several different systems for the staging of cancers. This report uses the general summary stage system. The stages, in order of increasing spread, are in situ, localized, regional and distant. Cancers diagnosed at the localized, regional or distant stage are referred to as invasive. A small percentage of cancers will be diagnosed with an unknown or unspecified stage; these are referred to as unstaged. Staging data on all reportable cancers follow SEER guidelines for general summary stage.

- **In Situ:** A tumor that fulfills all microscopic criteria for malignancy but does not invade or penetrate surrounding tissue.
- **Localized:** A tumor that is invasive but remains restricted to the site of origin.
- **Regional:** A tumor that has spread by direct extension to adjacent organs or tissues and/or metastasized (e.g., spread) to regional lymph nodes but appears to have spread no further.
- **Distant:** A tumor that has spread by direct extension beyond adjacent organs or tissues and/or metastasized to distant lymph nodes or other distant tissues.
- **Unstaged:** There is insufficient information available to determine the stage of disease at the time of diagnosis.

Years of potential life lost (YPLL): A measure of the cancer burden in a population. This measure quantifies premature mortality occurring in younger age groups by measuring the number of years between an individual's age at death and a preset standard age at death.